June 1962
Vol. 162 No. 22

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

Lawrence G. Kersta, Bell Telephone Laboratories scientist, speaks into microphone to make a print of his voice. Spectrograph machine at right will make a voice-print on the paper-covered drum at bottom. Experts believe they then can distinguish his voice-print from any other. See story on page 50.

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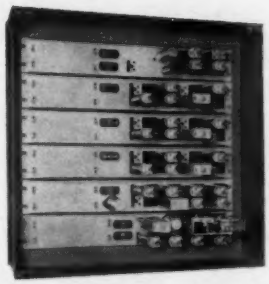

THE 6K-1 RELAY CABINET provides for three C.O. line circuits, **factory-wired and equipped.** Basic wiring is included for additional lines and optional services—making this Stromberg-Carlson 6K-1 circuitry **the easiest system to install.**

FLASHES AND PLUGS

SOUPY SOAP SOLUTION. A Milwaukee mother was recently faced with quite a problem. Her seven-year-old son, David, whose pet, Beeger, part beagle and part basset hound, tried to make friends with a skunk and had come off vanquished, brought his problem to her.

David's mother turned to her trusty telephone, but after several calls, she still had not found anyone who had a remedy for such an emergency as this.

But Beeger must be de-odorized for social acceptance! She dug deep into her memory, and finally decided that a can of tomato soup on a kitchen shelf might be the answer.

Having anointed a miserable Beeger generously with the soup, she left him undisturbed for a short time. Then, after a bath, Beeger emerged, completely purged of his unpleasant encounter.

•

EARRINGS' NOT FOR HEARING. Although this is a fact of office life, and familiar to all women employes, there are still some gentlemen who, seeing a gal without an earring, may think she is affecting a new style, or worse, that she'll turn things upside down looking for a lost earring.

Not so. The telephone has been busy all day, and milady, answering and answering and answering, is just being helpful and practical—she hears better without the bauble in the way, and why put it back on if she'll pick up the receiver again any hurrying minute?

•

LIFE IN STORKSVILLE. In Charlton, a suburb of London, England, a man dashed up to Police Constable Michael Blake, and said, "My wife is going to have a baby, and she's alone in the house. Please look after her while I telephone the midwife."

Only 11 minutes later, the midwife arrived at the home of the expectant parents, but Constable Blake had already delivered a girl baby to the happy pair—Jean and Richard Stork.

•

FIRED UP, BUT FEET COLD. Some hot telephone calls recently took place in Chicago between the men of several engine companies of the Chicago Fire Department and the Chicago Police Department.

While men of one company were out fighting fires, someone stole their shoes, telephoned an irate member of that company.

Then, two firemen from Engine Co. 76 reported by telephone that someone stole their shoes.

But this was not all the thieves found alluring at fire stations. In another station, a fire company lost a roast beef dinner, a portable TV set, and one more pair of shoes, all while the firemen were out checking on a false alarm.

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

SINCE 1901

June 2, 1962

CONTENTS

IN THE NATION'S CAPITAL 19
By Lawrence J. Hogan

CONVENTION CALENDAR 20

DUTCH PIONEER IN METHOD FOR PRINTING DIRECTORIES 21
By J. B. DeWinter

TODAY'S HIGHLIGHTS OF FINANCE, TAXES, BUSINESS TRENDS 25
By Willard F. Stanley

THE TRAFFIC PAGE 28
By Winnie Burnett

ARE YOUR ASSIGNMENT SLIPS SHOWING? 30
By Gilbert R. Brackett

THE PLANT MAN'S NOTEBOOK 36
By Ray Blain

PLANT MAN'S QUIZ 38
By Ray Blain

GROWING COMPETITION HIT HARD AT HOOSIER CONVENTION 42
By Norman Kolin

COURTS AND COMMISSIONS 48

REA AUTHORIZES 21 LOANS TOTALING $8,039,000 52

NEWS ON NEW PRODUCTS 62

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Secretary* • JAMES M. BASHAM, *Managing Editor* • HELEN HARDIN, *Associate Editor* • LAWRENCE J. HOGAN, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • PAUL E. MURPHY, *Electronics Editor* • WINNIE BURNETT, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

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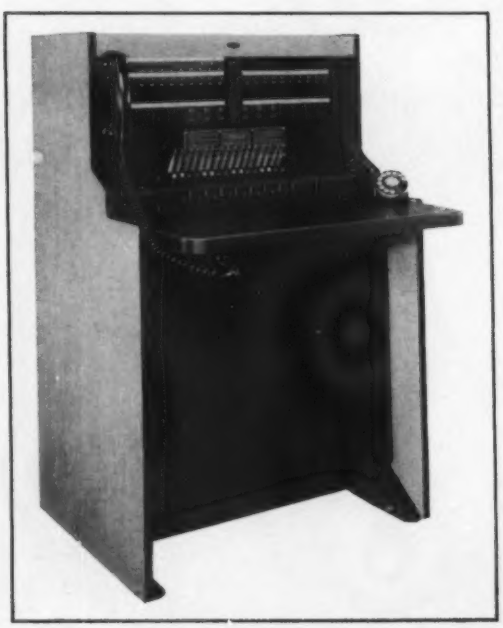

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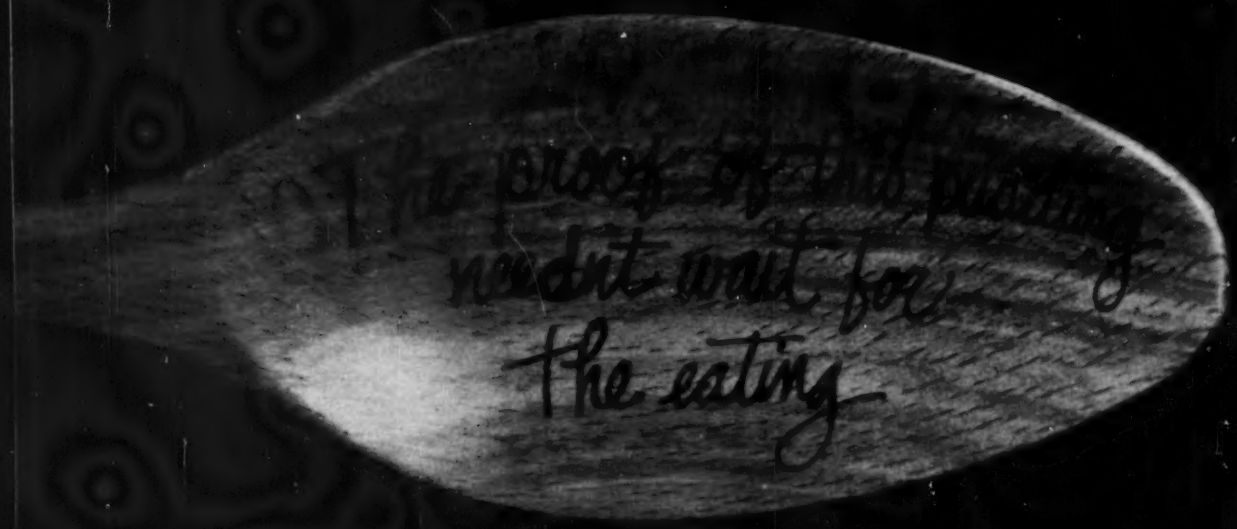

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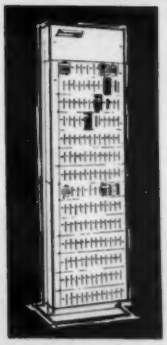

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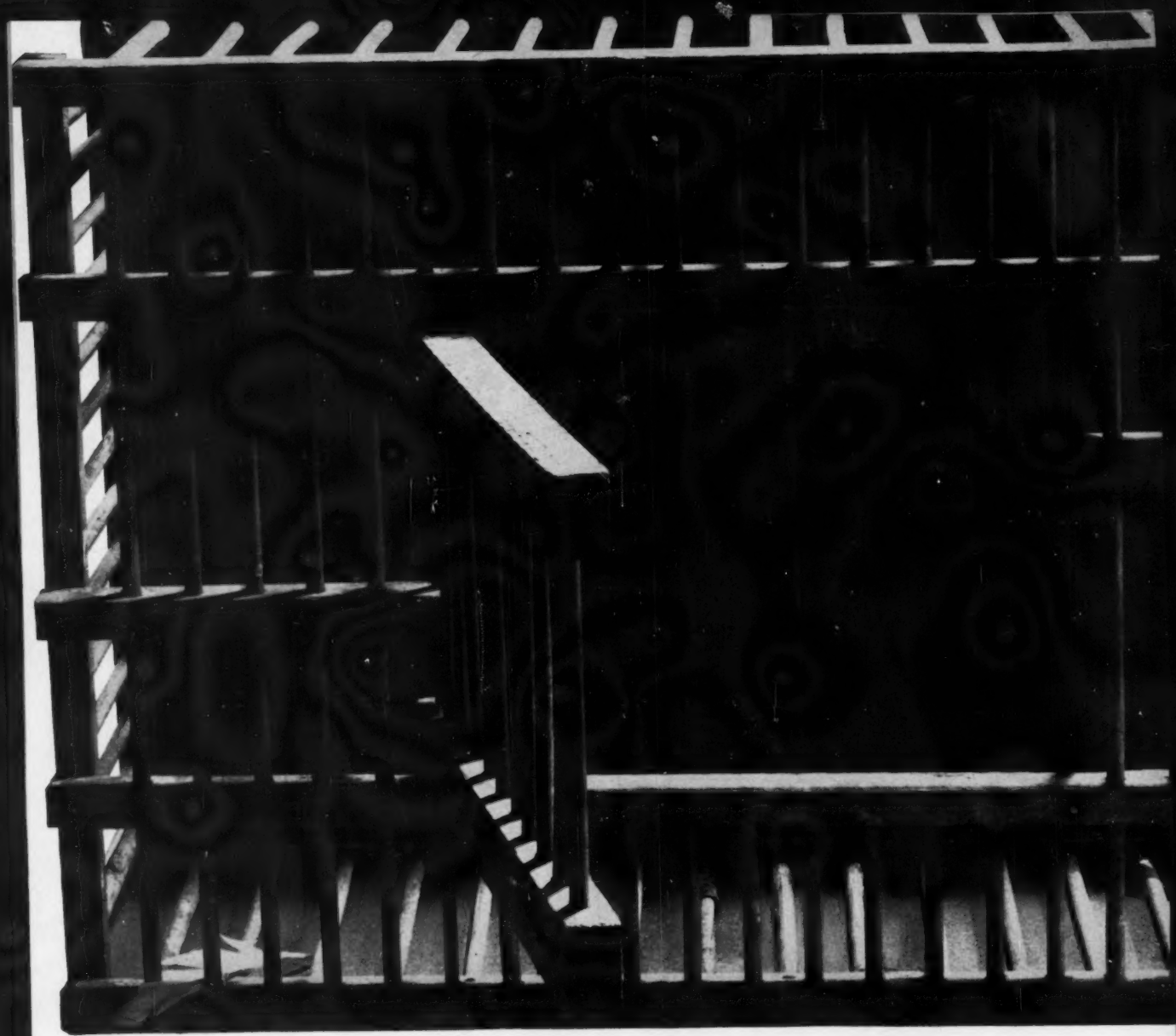
Going once!

Going twice!

In Georgia, chickens are auctioned by phone over a network set up by Southern Bell and neighboring Independent Companies.

The auctioneer sits behind a console in Gainesville. Thirty processor-buyers, located in nine different Georgia and Alabama cities, follow the auction through pushbutton-equipped desk speakers. To bid, they push buttons keyed to lights on the auctioneer's console.

Watching the lights flash, the auctioneer keeps the bidding open until the high bid is reached, confirms the high bid, checks to see that the seller



Sold! (by telephone)

will accept it, and calls for the next lot of chickens.

Buyers like the system because it saves them a trip to the auction. Sellers like it because it lets them sell their chickens in the cities willing to pay the best prices. Such enthusiasm makes telephone people justifiably proud.

The Georgia chicken auction network is another example of the extra subscriber benefits that result from Bell System–Independent Company cooperation.

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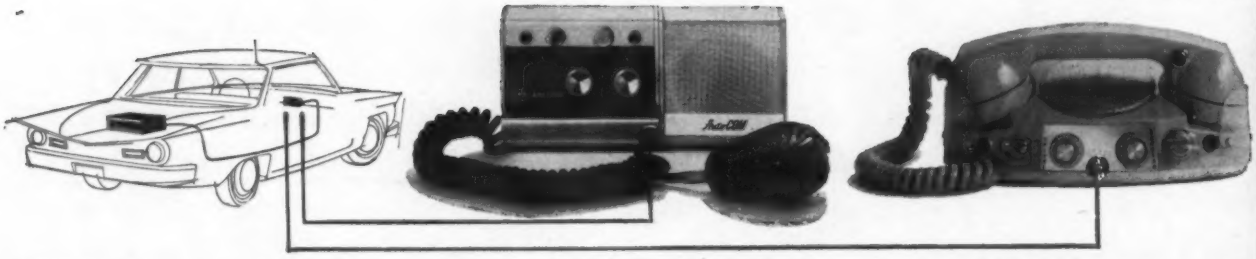
AutoCOM 2-way

This entire unit, including plug on control head shown above can be mounted under dash in service trucks, cars or other vehicles. It is also used as a desk-top base station unit when equipped with an A.C. power supply.



The transmitter receiver unit may also be mounted separately, as in the trunk of an automobile, with only the control head mounted on the dash.

Standard control head may be separately mounted at any convenient location in vehicle. Connects to unit by cable.

Special Cinderella telephone may be substituted in place of standard control head. Control unit is incorporated in telephone base.

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can be easily converted to mobile dial radio telephone

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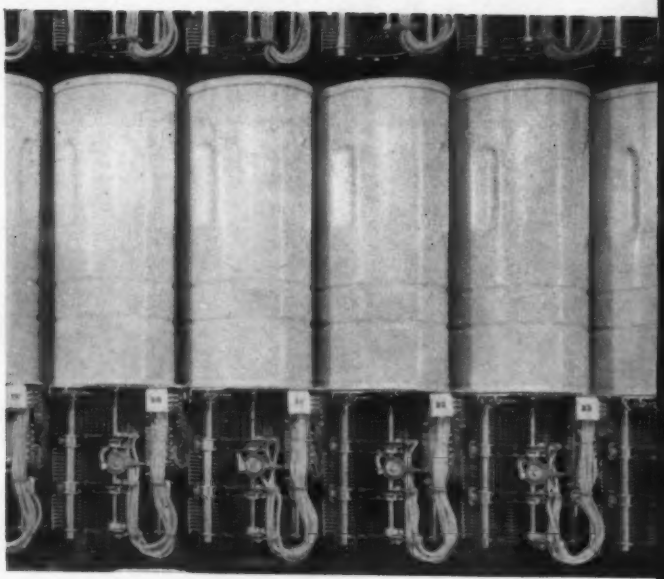
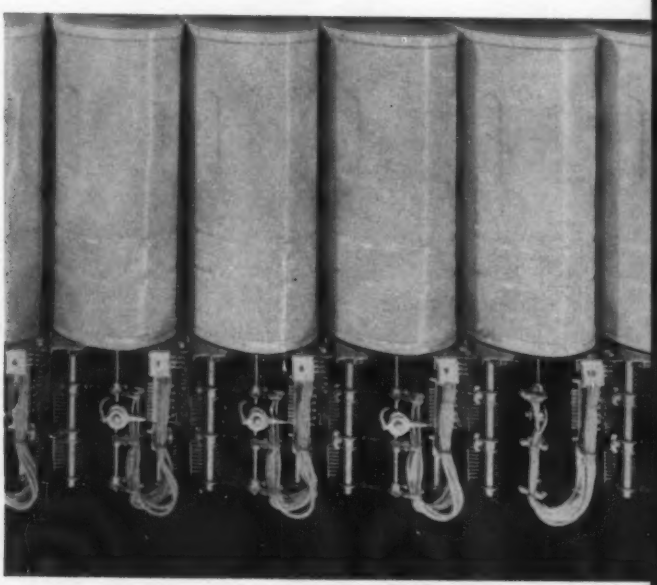


"We can meet any future need after converting 430 stations to AE dial"

reports T. S. Weaver *PRESIDENT, GILMAN TELEPHONE CORPORATION*



GILMAN, IOWA is one of the many farming communities that make up our Middle West. Together, these communities are the bread and butter of America. To provide Grade-A communications is the job of Gilman Telephone Corporation, which serves a seven square mile area.

In recent years, three problems arose which made Gilman's job more difficult. For one, customer traffic had exceeded the capacity of Gilman's manual equipment. Compounding this problem was the fact that replacement parts were no longer available. Noisy transmission was the second problem. All of Gilman's rural lines were grounded circuits and each line carried over 20 subscribers. Third, increased usage had made switching calls too complex. Perhaps more operators were the answer. T. S. Weaver, president, Gilman Telephone Corporation, eliminated that suggestion: "How much our customers pay for telephone service depends largely on how much we pay our operators. Adding more operators would force a rate boost and still not solve our problems."

There was another factor to consider, too. How did the people feel about their present telephone service? "Our customers were aware that other nearby towns had dial service," said Mr. Weaver. And he knew this knowledge might cause dissatisfaction should Gilman increase rates.

Gilman Telephone Corporation met the challenge. "We simply could not continue with a system that was lessening service and stifling growth," states Mr. Weaver. The time had come to go dial.

The problems confronting Gilman were presented at a special meeting of stockholders. Dial conversion won quick approval. Choosing the brand of dial equipment took longer. Nick Brooks, AE representative, outlined the advantages of AE dial equipment to the board of directors. After careful deliberation, AE was chosen. A Gilman board member tells why: "We were, of course, interested in meeting our present needs. But the future was just as important. We wanted dial equipment that would be as up-to-date 20 years from now as it is today. Nick Brooks convinced us that AE's simple circuits and unitized construction would enable us to meet any future need simply and economically. That's why the board chose AE dial."

Now the actual job of conversion began. The first step was a study of exchange traffic by AE. This would help determine the exact amount and type of equipment that Gilman needed now and in the years to come.

Financing was an important consideration. Gilman needed to borrow capital for their conversion. Nick Brooks suggested negotiating a loan under the AE Finance Plan. Said T. S. Weaver: "Nick explained the entire plan and helped us fill out the application form. And he insisted we have our own lawyer and accountant check the agreement."

Gilman was getting more than just new central office equipment. Its entire outside plant was being rebuilt. AE engineers assisted in planning the complete layout. They recommended type and gauge of cable, type of terminals, rural wire and accessories. Loading schemes were figured. "AE impressed us with its thoroughness," commented Mr. Weaver. "They considered every factor of outside plant—and some we hadn't thought of."

AE continued to impress Gilman telephone people as the months passed. They helped set up a new rate structure. An AE engineer explained the advantages of terminal-per-station dial equipment. A more efficient fire-reporting system was developed in cooperation with fire department officials. And so it went. AE was providing for Gilman's every current requirement, every conceivable future need.

In May, 1962, Gilman Telephone Corporation converts to AE dial. At that time, Gilman's 430 customers will begin enjoying the advantages of dial service. T. S. Weaver offered a few last words: "From the beginning, AE handled the whole problem of conversion from our viewpoint. They stepped into our shoes...and got us off on the right foot."

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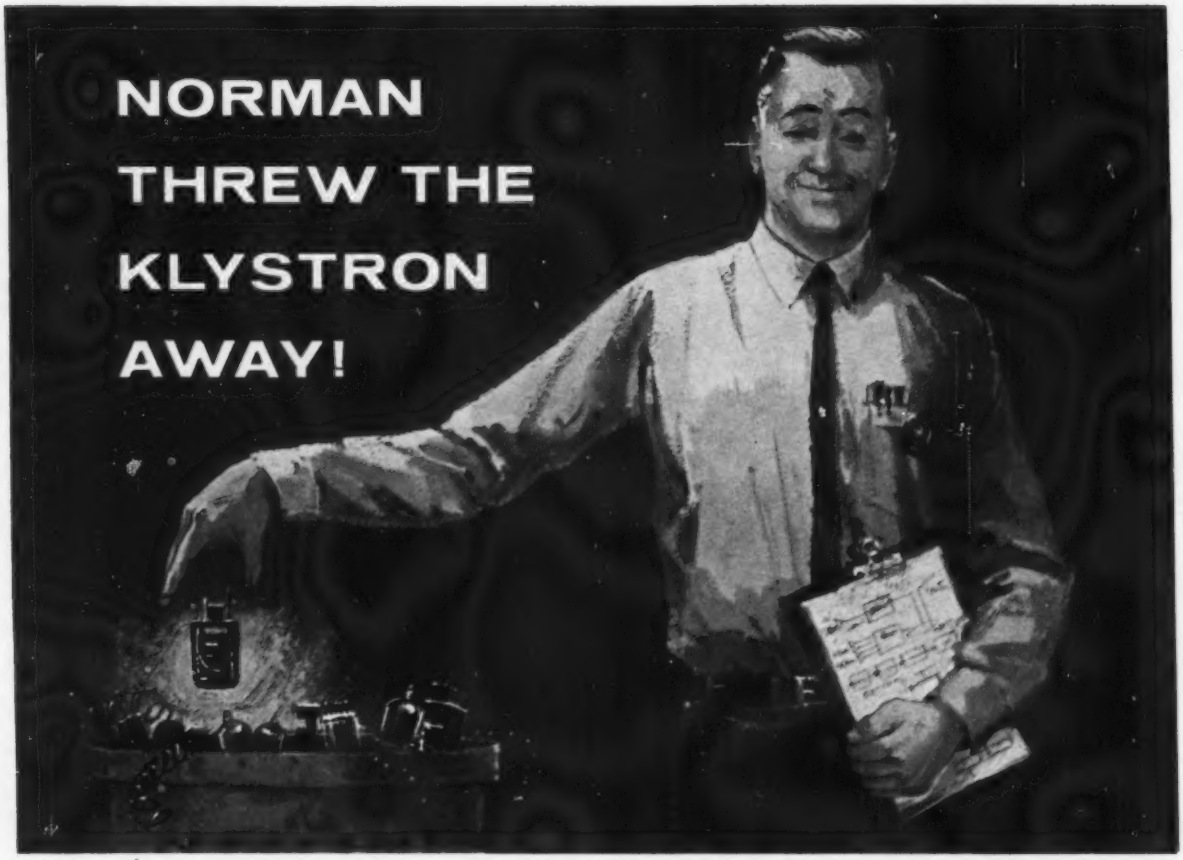

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IN THE NATION'S CAPITAL

BY LAWRENCE J. HOGAN, WASHINGTON EDITOR
and President, Larry Hogan Associates,
Public Relations Firm.

House bill provides 85.3 million dollars for space communications satellites . . . . Senate committee close to finishing work on communications satellite ownership bill . . . . Anti-seizure of American property provided for in foreign aid bill.

SPACE COMMUNICATIONS satellites came in for their share of attention on May 23 when members of the House Committee on Science and Astronautics intoduced H.R. 11737, a bill to provide $3,742,162,000 in appropriations to the National Aeronautics and Space Administration (NASA).

By a roll call vote of 367-0, the House passed the bill and sent it to the Senate. Included in the record 3.7 billion dollar budget was an authorization of $85,377,000 for communications satellites.

A member of the House committee, Rep. Ken Hechler (D., W. Va.), in discussing the various satellites, pointed out to his colleagues in the House that the bulk of the cost for communications satellites is for the flight program—getting the satellites up and into orbit. He said 80 million dollars of the 85 million-plus dollars would be spent on this aspect of the program.

With regard to the importance of communications satellites, Hechler told the congressmen, "Communications satellites offer the possibility of microwave communication over long distances by providing relay stations at altitudes where they can be viewed simultaneously from all points within vast areas of the earth's surface. The capacities of the existing systems which connect major population areas are at the point of saturation. The communication satellite system promises to expand our international communications by more than 20 times.

"For instance," he continued, "it is the judgment of many experts that a working communications satellite system will be able to handle in one hour all the present communication traffic we are experiencing each day. In addition, worldwide television will be possible for the first time, and this will be significant in breaking down the cultural and political barriers between nations with which we are presently confronted. . . . This authorization will also investigate the applicability of nuclear power supplies, such as Snap-8 to communications satellites."

Commenting further on the advances being planned in this field, Hechler said, "NASA is also studying techniques for launching a number of satellites into orbit from a single booster vehicle. This multilaunch concept will, of course, save a great deal of money necessary for launch vehicles, which constitutes such a heavy cost."

Hechler pointed out that some private firms and the NASA have conflicting thoughts on when an operational communications satellite system might be operational. He said various private concerns thought this could be accomplished by 1965 but added, "NASA officials have made a more sober estimate of the timing of an operational communications satellite system, and have made the prediction that it would more likely be 1967 or 1968 before we have enough hardware and experience to term the system operational. Limited operation might take place earlier, however."

Calling the meteorological and communications space satellite programs among the "most significant in our entire space effort," Congresswoman Jessica McCullough Weis (R., N. Y.) said, "They may well turn out to be the most rewarding of all our space programs."

She also reaffirmed her staunch belief in the importance of private ownership of the communications satellite project. Mrs. Weis, who is a member of the House Sub-committee on Applications and Tracking Data Acquisitions, said, "A year ago, when the 1961 authorization was under consideration in the House, I spoke at some length regarding the importance of moving ahead immediately with our communications satellite program. At that time, I emphasized the importance which I attached to private ownership of the communications satellite system.

"I have been extremely gratified by the actions which both the administration and the Congress have taken on this matter since last year, and I think it is significant that within the month the American Telephone & Telegraph Co.'s first experimental communications satellite is scheduled to be launched. If we stay on schedule, there appears to be sound reason to believe that we will achieve a significant first in the communications satellite field."

Satellite Decision Near

As of the writing of this column, the Senate Commerce Committee was reported close to finishing work on the communications satellite ownership bill.

Chairman Magnuson (D., Wash.) has indicated that the committee has adopted some 32 different amendments and that a "clean" proposal will be voted on as soon as staff members can present it to the legislators. It is likely that the bill, which is reported out of committee, will greatly resemble the original compromise plan which would create a corporation to be 50 per cent owned by the public and 50 per cent owned by the communications carriers. Such a corporation would be directed by a 15-man board of directors, composed of six public directors, six from the industry and three appointed by the President.

Some objection has been raised to

the provision of the House bill (H.R. 11040) which gives preference to the communications industry in ownership of ground stations. It is expected, once the Senate Commerce Committee has acted, that the proposal will go to the Senate floor without serious delay. A somewhat hostile Senate Judiciary Anti-trust Sub-committee held some hearings but will not be able to interfere.

FCC Picks Proposed Review Board

On May 23, the FCC announced it has unanimously selected four key staff members to constitute a review board authorized by the recent FCC Reorganization Act.

The members will be Donald J. Berkemeyer, present chief of the Office of Opinions and Review, who will be chairman; Dee W. Pincock, present assistant general counsel in charge of regulatory matters; Joseph N. Nelson, present chief of the Renewal and Transfer Division of the Broadcast Bureau, and Horace E. Slone, present engineering assistant to Commissioner Bartley.

These designates will review contemplated rules which, when adopted by the commission, will establish the board procedure. The board will act on routine adjudicatory matters and review initial decisions not retained for action by the commissioners. The members will rotate on the board, with three sitting at a time.

FCC Examiners Say Press Misses Point

In our May 5 column, we reported on the results of the long-awaited Booz, Allen and Hamilton (BAH) consulting firm's report on the operations of the Federal Communications Commission.

We said that BAH concluded rather obviously that, like most other agencies, FCC needs better people, better training, more efficiency, etc., and it cost the American taxpayers about $60,000 for this "enlightening" bit of intelligence.

Now comes BAH with a letter dated May 3 expressing "deep concern" to David E. Bell, director of the Bureau of the Budget, because of "certain press accounts relating particularly to the adequacy of the commission's regulation of telecommunication common carriers."

BAH complains, "These articles in the press are, we believe, inaccurate interpretations of statements in our report with respect to FCC regulation of the telephone industry. They impute to us views and attitudes which we do not hold. For the record, it appears necessary that we clarify the meaning and intent of the report of our study. . . ."

Then BAH proceeds to explain, in effect precisely what we said in the May 5 column. Says BAH, "Our sole purpose in the pertinent sections of the report was to emphasize the finding of our study that the Common Carrier Bureau is not well equipped in terms of organization, facilities or staff resources to meet its heavy statutory responsibilities in the face of a rising workload."

Well, that's what we said. FCC needs better people, better training, more efficiency, etc.

For much less than $60,000, any casual observer could come to that conclusion, it seems to us.

Key bureau and office heads of FCC have been studying the BAH report, and FCC's own evaluation of the report was to have been provided to the Bureau of the Budget on June 1.

Strong opposition is reported on the commission and staff level against broad powers for the chairman and a propose executive director. New rules to form a three-member employe review board are moving forward and were to be ready for adoption by June 1.

Convention Calendar
1962

Association	*Date*	*City*	*Hotel*
Pennsylvania	**June 4, 5 and 6**	**Bedford**	**Bedford Springs**
New York	**June 11, 12 and 13**	**Whiteface**	**White Face Inn on Lake Placid**
California	**June 13 and 14**	**San Francisco**	**Jack Tar**
Washington-Oregon*	**June 21 and 22**	**Portland, Ore.**	**Sheraton-Portland**
Alaska	**Aug. 19, 20, 21**	**Haines**	
Tennessee	**Sept. 5 and 6**	**Nashville**	**Hermitage Hotel**
Arkansas	**Sept. 10 and 11**	**Hot Springs**	**Arlington Hotel**
Nevada	**Sept. 11, 12 and 13**	**Sparks**	**Sparks Nugget**
Georgia	**Sept. 13 and 14**	**Jeckyll Island**	**Corsair Motel**
Michigan	**Sept. 18, 19 and 20**	**Lansing**	**Jack Tar**
Rocky Mountain	**Sept. 19, 20, and 21**	**Salt Lake City, Utah**	**Hotel Utah**
West Virginia	**Sept. 24 and 25**	**Wheeling**	**Oglebay Park**
North Carolina	**Sept. 30, Oct. 1, 2 and 3**	**Pinehurst**	**Carolina Hotel**
New England	**Oct. 1, 2 and 3**	**Poland, Me.**	**Poland Spring Hotel**
USITA	**Oct. 22, 23 and 24**	**Chicago**	**Conrad Hilton**
Virginia	**Nov. 8 and 9**	**Roanoke**	**Hotel Roanoke**
Alabama-Mississippi*	**Nov. 12 and 13**	**Birmingham, Ala.**	**Thomas Jefferson Hotel**
Oklahoma	**Nov. 14 and 15**	**Oklahoma City**	**Skirvin**
Florida	**Nov. 25, 26 and 27**	**St. Petersburg**	**Tides Hotel & Bath Club**
South Carolina	**Dec. 3 and 4**	**Columbia**	**Wade Hampton**

***Joint meeting**

Radios, TV Sets Outnumber Home Telephones

The U. S. Bureau of the Census has reported that the telephone is running a close third now among household companions.

According to the 1960 census, of the 53 million households in the country, 48½ million had radios, 46 million had television sets and 42 million had telephones in or near their housing units.

Anti-seizure Proviso in Foreign Aid Bill

Seizure of American interests abroad—such as the series of telephone company expropriations in Brazil—has apparently raised enough ire to get some action on Capitol Hill.

Passage of a foreign aid bill restriction against seizures of American property interests abroad has suddenly emerged as a likely prospect. The Senate Foreign Relations Committee has finished work on a 4.6 billion dollar foreign aid bill which contains a compromise section on expropriation of American property interests (mainly utilities) by foreign governments. It

(Continued on page 60)

LANGENBERG J A Zeedijk 3 ..... 27 27
LAVERGE & v ASCH Fa Graanh Havendijk 23 24 62
LEDDEN J v Achter 't Zand 46 ..... 20 35
LEDDEN HULSEBOSCH G F v Het Veerburg 8 26 01
LEEUW H G de Text Varkensmarkt 6 ..... 25 66
LEEUW J de Handelsond Rotex sigaren choc text-engr Tollenstr 30 ..... 23 69
LEEUWEN BANKETBAKKERIJ S J A v Binnenpoort 18 ..... 26 66
LEEUWEN-TIMMERMANS Mevr J M P v Tulpstr 61 ..... 28 67
LEUNEN J v Willemsl 6 ..... 20 59
LEUVENINK M Melk- boter- kaas- en eierh Varkensmarkt 1 ..... 25 51
LICHTE W v d Hfd Zn Chr school Meerl 1 ... 21 75
LIEFDE NV vh Fa W de Stationsw 1 ..... 21 45*
LIENDEN G v Houtw 3 ..... 27 33
LINDEN A J C v d Markt 38 ..... 24 02
LINDEN J v d Leraar opvoedk pedag advis A v Lalaingl 39 ..... 27 54
[illegible]'s MEUBELIND v d K Nieuwstr 5 .. 26 32
[illegible] v d Dahliastr 29 ..... 20 22

PLANEET MEUBELFABR Dir C J Verkerk Parallelw W 9 ..... 23 23
POLDERDISTRICT LEK en LINGE Dist huis Casa Bianca 23 22
Dubbeldam L secr ontv Casa Bianca 23 22
Dijkgraaf Huize de Heuf Buren ... 03447- 2 50
Dijkmag Lekdijk W 1 Beusichem .. 03453- 2 97
Gemaal de Horn machinist .. Leerdam 03451- 22 88
Gemaal de Neust machinist Geldermalsen 03455 - 3 07
Smit R Hfd techn dienst Tollenstr 27 ... 21 06
POLITIE GEMEENTE Bur v Pol 24 44*
Woonh insp-kompschef 24 44*
POLL-GERRITSEN Mevr P P J v d O Vismarkt 9 bis 21 39
POMPE P J W Spoorstr 24 ..... 21 29
POST- TELEGRAAF en TELEFOONDIENST Kant 25 11
Dir 24 11
POSTMA W D Beatrixstr 28 ..... 20 84
POTHUIZEN C D Exped Culemb-Utr Tollenstr 32 ..... 23 24
POUTSMA J A, J v Riebeeckstr 158 ..... 20 56
[illegible]

SLOOTEN F v Heilgymnast mass leraar MO lich opv De Uphof 1 ..... 25 16
SLOT H v 't Insp Nezlfb J v Riebeeckstr 128 21 74
SLUIS' STALEN MEUBELEN A v Diemenstr 27 10
SLUIS G L v d Gr Kerkstr 17 ..... 27 55
SLUIS MACHINEFABR en REP BEDR v d A v Diemenstr 10 ..... 27 10
SLUIS N W v d Slotstr 14 ..... 28 03
SLUIS Jr N W v d Boekhoud Exportslacht Juch St A Kapelstr 62 ..... 28 86
SMITS H Leraar econ en handelswetensch A v Lalaingl 31 ..... 21 25
SNOEK St Th Verzek ag ABTB Parallelw 0 13a 26 85
SPENCER-HEY NV TEXTIEL UNIE Parallelw W 35 ..... 21 41*
Woonh H G Hey Elisabethdreef 5 ..... 24 27
SPOOR's MOSTERDFABR NV Fabr en kant Lg Meent 1 ..... 26 69
Woonh dir L Fokkema Stationssing 1a ... 28 71
SPOORWEG SEIN IND NV Lg Meent 11 ... 20 41*
SPOORWEGEN NV NED Stat 26 50
v Gend & Loos Goed loods Stat emplac .. 23 33
[illegible] Econ dir St Barbara-

Vismarkt 10 .....
VEER G J v d Verslagg J v Riebee
VEER Joh C v d Kass Beerenl ban sing 21 .....
VEER L A v d Parallelw 1 Oost .
VEILING CULEMBORG en OMST v d Hurk Vliegerw 13 .....
VEILINGSVER HOUTEN en OM Afd Culemb Helling 3 .....
VELDE W J v d Slijt en wijnh ag neken's Bierbrouw Mij NV Haver
VELDHUIZEN H Meubelbedr Prijs
VELDT G C Fruith Prijssestr 46 .
VENDRIG P G Meerl 13 .....
VERBAAST J Goilberd dijk 24 ..
VERBEEK Fa A Aann Herenstr 37:
VERBEEK-BOUW NV Aann bedr K str 16 .....
Woonh A Verbeek A v Lalaingl 1
VERBRUGH G J A Exped zand- e Kerkstr 12 .....
VERHALLEN F [illegible]
Inspr [illegible]

The national directory is printed with four columns to a page with 12 lines on an inch, for which the Justowriter type is reduced to 45 per cent of the original.

SCHUILING E Zwolsew 39 ..... 64 17
SCHUTTE J Bakker en kruidenier Mepp w 5 63 33
SEUBRING & Zn Dorsbedr Hoogev w 6 ... 63 78
SIPKEMA & Zn Fa B Meub mag Zwolsew 24 64 01
SLOOTS R Hoofdw 3 ..... 62 63
SLIJKHUIS H J Landb Nieuwedijk 4 ..... 63 90
SMINK H L Kapsalon sig mag Zwolsew 44 . 64 39
SMIT J Landb Sluis IV-8 ..... 62 38
SPIJKERMAN J Commission in aardapp 4 Benedenvaart 63 67
STEEN G, Groent en fr h 3e Schansw 2 ... 63 24
STEVENS T Brandst olie Benegas Noordkant 11 ..... 62 68
STOLTE H J Bakk kruidenier drog foerages Sluis 4 Nr 6 ..... 64 20
STUIVER J Veehand 16 Benedenvaart 64 28
TUIN K 39 Benedenvaart 62 70
VEENBAAS S 4 Den Kaat 63 05
VEENINGEN K [illegible] Groot Or-
[illegible]

FLEVO NV Banterw 28 ..... 3 61
FOKKENS J J Autoverh L Omgang 31 ..... 3 25
GERBRANDIJ R Oosterringw 60 ..... 3 29
GESCHIERE K Burchtw 20 ..... 3 65
GOMMERS Joh C M Wellerzandw 8 ..... 4 67
GOOR H J v Lemsterw 5 ..... 4 63
GREIDANUS J Landb Lemsterw 12 ..... 4 85
GROENE M A de Banterw 22 ..... 3 20
GROENEWOLD J Schoterw 4 ..... 4 94
bgg 4 05
GROENEWOLD P, K Omgang 27 ..... 4 05
bgg 4 94
GIJSBERTS C H Lemsterw 14 ..... 4 69
HAARTSEN A Oosterringw 68 ..... 3 79
HAPEREN W J v Zuidwend 5 ..... 3 26
HAVELAAR A T Bedr L 2 Schoterw 2 .... 4 04
HAVERKAMP C J Polenw 13 ..... 4 64
HAZE[illegible]BERG C M [illegible]zandw 17 ..

VERHULST M Vert Visser's zaden K Omga 14 .....
VERMUNT A J Burchtw 12 .....
VERSLUIS P G Bedr F 30 Polenw 16 ..
VERSTEIJNEN W Vert Coöp Verk ver AB GA L Omgang 15 .....
VISSCHER L Noorderringw 5 I .....
VISSER E Lemsterw 3 .....
VOS F Landb Schoterw 1 .....
VOS J Luxe br- k- en banketb Het Midden
VRIES A de Polenw 6 .....
VRIES H de Noordakker 30 .....
VRIES J de Noorderringw 11 II .....
VROOM A M Polenw 3 .....
WAAL H de Polenw 12 .....
WEGEN M v Schoterpad 1 .....
WESSELIUS L J Boekverk Wellerzandw 1
[illegible] R K[illegible]w 10 .....
.....

The district and local directors are printed with three columns on a page with 10 lines on an inch, for which the original image is reduced to 60 per cent.

Dutch Pioneer in Method For Printing Directories

*By J. B. DeWINTER**

PRINTING TELEPHONE directories always has been a struggle between the telephone company's desire to publish up-to-date books and the printer's technical capacity.

In Holland, this has been especially so, because the public is accustomed to having not only a local or sector directory, but also—since the first edition in 1904—a national one.

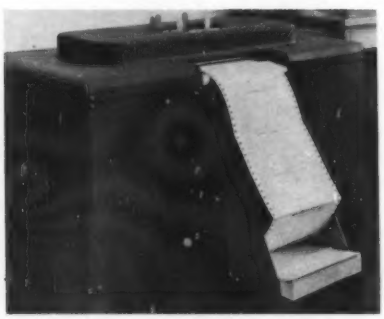
After World War II, publishing this double information became a serious problem. The rapid increase of entries (entries doubled within 10 years), the rising number of books to be printed, and the extension of automatic dialing both national and international, all caused Dutch telephone officials and printers to look for a simplification.

Omit Double Work

Omitting all double work (keeping

*Mr. DeWinter is an official of the Netherlands Post, Telegraph and Telephone Co.

Operators type directory listings on Justowriter Recorders which produce both copy and a punched tape. The punched tape goes through a second machine which justifies lines on a card stock.



The web of cardstock is placed in front of the card cutter and passes through the machine at a speed of 6,000 cards per hour. The cut cards are stacked on top of the machine.

up-to-date records of both directories, double composing, reading, printing and binding) would mean to stop printing the national directory. But the local and sector directories (numbering 133) were not suitable to serve as a national one.

So the plan was born to reduce the number of 133 down to 16, *viz.*, three local ones (Amsterdam, Rotterdam, and The Hague) and 13 district directories covering the rest of the country. People wanting national information were forced to buy 16 books.

Executing this plan, which involved recomposing, took several years and during the period a storm of protest arose from the public, led by the papers and chambers of commerce. The only possible solution seemed to be to go back to the old system of doubling all work.

World-Wide Search

Th. H. Oltheten, director-general of the Dutch government printing office, started a world-wide search for a better system.

In 1957, after a visit to the United States, he was able to show the Dutch telephone officials a way of making variable listing publications, used in the U.S.A. for printing credit-lists, part-lists, and so on, but up to then, not for telephone directories on such a scale as would be needed in Holland.

Nevertheless, the Dutch government printing office took the pioneering step in the use of Recordak Listomatic System for making telephone directories.

New Type Face

Reorganizing the entire directory printing provided an opportunity to choose a new type face and agreement was reached on "Bell Gothic." The size of all books was standardized to the European DIN A4 to make purchasing new printing and binding equipment easier. Extension and unification of abbreviations, shortening entries and omitting superfluous punctuation marks, like "U.S.A.," were the next measures.

Technically the system can be divided into two phases:

(1) Preparing the entries on cards.

(2) Photographing the cards with the Recordak Listomatic Camera, processing the film, and making the film into pages.

Cards were prepared on a Justowriter, an automatically justifying typewriter, manufactured by Friden.

Two Machines

A working unit consists of two machines which resemble electric typewriters: The Recorder, which produces a punched tape, and the Reproducer, which produces justified copy from the tape. One typing on the Recorder produces both a visible copy and a punched tape. At the end of the line, the operator, warned by a signal light, taps a justification key. Where necessary, corrections can be made, because the operator can check before proceeding to the next line.

Next, the punched tape is fed into the Reproducer where the copy is retyped and justified.

The entries are typed on fanfold cardstock. Positioning the lines on the cardstock must be accurate to $\pm .005$ inches because the photographic field on the Listomatic Camera covers only a portion of the card. The location of the lines is governed by a line-finder

Holes are punched in each card so the camera can identify whether to record one, two or three lines.

and the cardstock is kept in position by pinfeed.

Fanfold Cards

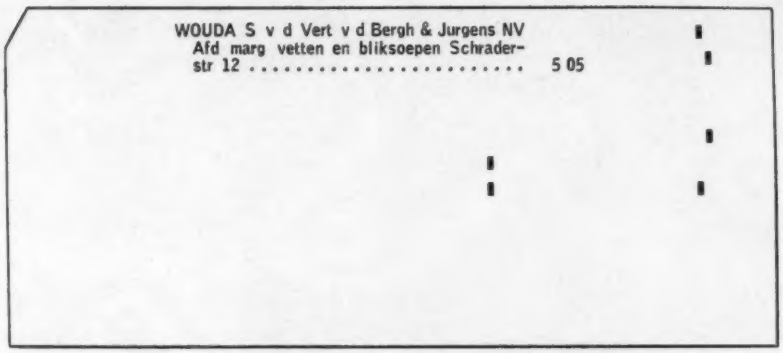
With the entries typed on the fanfold cards, they are then cut into separate cards by a cardcutter. The same pinfeed holes which guide the cards in the Reproducer are used to position them in the cardcutter, where they pass between a die and a punch with a speed of 6,000 cards an hour. Each cut card is pushed up and placed on metal stacker fingers, while the offcut leaves the cardcutter backwards.

As the Recordak Listomatic Camera is able to photograph one, two, or three lines with one exposure, each card must be coded according to the number of lines. This code, a punched hole, is made on a standard punching machine. Cards with one line are not punched; for two lines, one hole is made, and three-line cards get two holes. About 34 per cent of all entries contain more than one line.

Up to this point, none of the cards has been read. Since there are several stages at which mistakes can be made, reading only takes place after punching, when the cards are ready, and also involves checking the proper placement of lines on the card, which is done by putting each card in a special guage.

Transfer to Cardroom

When the cards are read, they are transferred to the cardroom, where at present nearly 1.5 million cards are stored, containing all Dutch telephone subscribers. In spite of the small space required—compared with the area needed for an equal number of slug-set entries—any card can be taken out easily and new cards inserted. Moreover, there is space enough to drive the camera close to the steel cabinet in which the cards are stored, so photographing takes place on the spot.



A finished card—reduced slightly—which shows three lines of copy. The two holes under the copy tell the machine to record three lines.

As soon as the card file for a directory is ready (two or three days after receiving the latest amendments), the cards are photographed at a rate of 11,500 (on 50-cycle current) an hour. Selectively, one, two, or three lines are photographed, according to the code punched. The images are exposed in column form on a roll of negative film.

The two types of directories are now made from one card file, the national one, four columns on a page with 12 lines on an inch, for which the card image is reduced to 45 per cent of the original; the district and local ones with three columns on a page, 10 lines on an inch, reducing the original to 60 per cent.

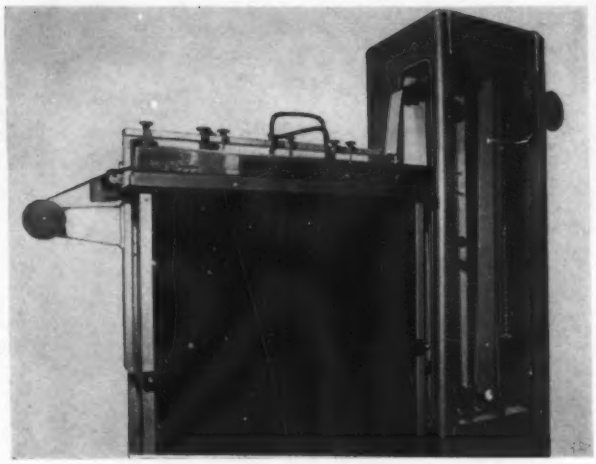
Dye-Line Print

To maintain constant quality, films are processed automatically and a dye-line print is made from each roll of film.

To speed makeup, a cutting and punching apparatus has been made on which each column is cut and punched. The punched columns are placed on a

Card changes can be made quickly in this file. The file is ready for the camera two or three days after receiving the latest amendment.

The Recordak Listomatic Camera is able to photograph the cards at a rate of 11,500 an hour and can select whether to photograph one, two, or three lines according to the code on each card.



The film from the camera is processed automatically in this machine. The roll is placed on the spool at left, then feeds through the machine and is rewound on the spool, upper right.

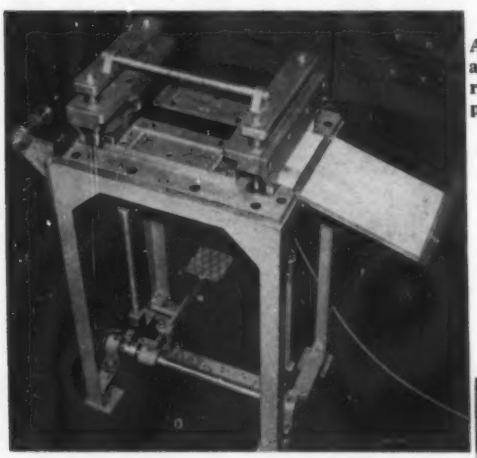
pegboard and joined with an adhesive tape. Page headings and page numbers are stripped in manually. From this negative page, another dye-line print is made, which is compared with the first print from the roll. Headings and page numbers are checked and then the film is ready for plate making.

All Dutch directories are printed offset and next year most signatures will be printed web-fed offset, rotary.

All Printed Yearly

Since the start of the new process more than three years ago, all three local directories, the 13 district directories, as well as the national directory in six volumes are published yearly, which involves re-photographing the up-to-date card file.

The pioneering of the Dutch government printing office did not remain unnoticed in Europe. The Danish Telephone Co. as well as the Norwegian government have installed Recordak Listomatic equipment for making telephone directories, and several other countries around the world are studying the system.



A cutting and punching apparatus has been made on which the rolls of film are prepared for page makeup. . .

. . . the cut and punched columns are placed on a pegboard and joined with an adhesive tape to make pages. Headings and page numbers are stripped in by hand.

Industrial Leaders Discuss Impact of Space Research

More than 200 business and industrial leaders from seven Southeastern states gathered at Duke University in Durham N.C. for a symposium on the implications which the Nation's rapidly expanding space research program has for the region.

Sponsored by Duke University, the conference was keynoted by James E. Webb of Washington, D. C., administrator of the National Aeronautics and Space Administration.

Webb, was introduced by Gov. Terry Sanford, who spoke on "National Space and the Southeast Region."

Dr. Hiden T. Cox, assistant administrator and public affairs officer for NASA, delivered the concluding address speaking on "Implications for Universities and Industry of the NASA Mission."

The speakers included C. M. Blair, vice president of American Telephone and Telegraph Co. in charge of its space communications program, who spoke on "Economic Implications of Space Developments"; Louis B. E. Fong, chief of Industrial Applications for NASA, whose subject was "Industrial Applications of Space Research"; Capt. Frank B. Voris, Assistant Director of Aerospace Medicine for NASA, who discussed "Space Medicine in the Manned Space Flight Program"; and Dr. Russell Shelton, chief of the Nuclear and Ion Physics Branch, Research Projects Division of NASA, located at the George C. Marshall Flight Center, Huntsville, Ala., who discussed "Scientific Achievements and Problems in Space Research."

Following the addresses by Blair and Fong, a panel of five educators and the two speakers took the discussion. Dr. Frank T. de Vyver, assistant provost of Duke and chairman of the department of economics, served as moderator. Others participating were: Dean Allan M. Cartter of Duke's Graduate School of Arts and Sciences; Dean Maurice W. Lee of the Graduate School of Business Administration at the University of North Carolina; Stephen Enke, professor of economics at Duke; and Ernst W. Swanson, professor of economics and chairman of the department at N.C. State College.

A second panel included: Dr. Paul M. Gross, William Howell Pegram Professor of Chemistry and President of the American Assn. for the Advancement of Science, who served as moderator; Dr. Ewald W. Busse, professor of psychiatry at Duke; Dr. Philip Handler, James B. Duke Professor of Biochemistry and President of the American Society of Biological Chemists;

(Continued on page 49)

TODAY'S HIGHLIGHTS

of finance-taxes-business trends

By WILLARD F. STANLEY

BOND PRICES CONTINUE UPWARD TREND: To the continued surprise of the financial experts the 30 days ended May 21 witnessed a continuation of the climb in bond prices which has been experienced for the preceding four months. This rise has been consistent during all 1962 to date—a year in which the financial experts had almost unanimously agreed would see higher costs of long and short term money.

About May 18, a double "A" rated utility funded debt issue came to market on a 4.20 per cent yield basis—the lowest yield for this type and rank of security since July, 1958—nearly four years ago. However, it should be pointed out that this issue bore the increasingly popular provision for a five year prohibition of redemption of the new bonds. Without this provision the offering yield might well have been 15 to 20 decimals (0.15 per cent to 0.20 per cent per annum) higher.

The Wall Street Journal tabulation of new utility issues continued to reflect the improvement in the bond market. Of 12 new issues tabulated as of May 17, all but one showed current bids higher than the original offering price and the average of such bids indicated a yield six decimals (0.6 per cent per annum) lower than the yield resulting from the average offering prices of these securities. This six decimal fall in yield follows a 10 decimal drop 30 days earlier and a six decimal decline 60 days previous.

For months, therefore, this tabulation has been showing a consistent pattern of falling yields and rising bond prices, keeping step with the basis on which new utility funded debt offerings were being made.

This rise in bond prices could continue for some time into the future if the pace of recovery slackens and demands for money continue on the relatively low side, but a slackening of the tempo of increased bond prices seems likely, if only on general principles and to reflect the law of averages. Certainly, utility managements would seem wise to market funded debt for their reasonably immediate future needs as soon as it can be brought to market to take advantage of the considerable improvement experienced since the turn of the year.

In the May tabulation, the average utility common stock price-earnings ratio dipped from 22.2 times to 21.8 times. This "May" figure is actually based on the market at April 23. The average ratio has no doubt fallen somewhat below the 21.8 figure in connection with the May market decline, but is still high enough to make it wise to dispose promptly of common stock for reasonable forward future needs. On an historical basis the average ratio is

Mr. Stanley, formerly a utility financial executive, is now president of Corporate Services, Inc. of New York City and is well known as a financial writer. He is a member of the Controllers Institute of America and the New York Society of Security Analysts. He serves on the Finance Management Committee and the Tax Committee of the Controllers Institute (N. Y. Control). His articles are appearing once a month in TELEPHONY.

extremely high even after the recent decline.

* * *

STOCK MARKET SINKS SHARPLY–THEN RALLIES: Continuing the March-April decline, the stockmarket averages experienced a substantial shrinkage in the period from April 27th to May 25th. The New York Times 50 combined stock average, which stood at 400 at the year end, had dropped to 346 at the low point on "blue Monday" (May 14). This represented an 11 per cent decline from the year end. However, a rally the same day carried the average substantially higher, but the rally was short lived and worse levels than "blue" Monday were soon to be seen. In the week beginning May 21, the market fell continuously for a total loss of 22.50 points in the Times average–the largest decline experienced in a week since 1929. As compared with the Times average at April 27th, the May 25th figure represented a 9 per cent decline. The latter date also evidenced a fall of nearly 16 per cent from the 1961 year end, a drop of about 2 per cent from the end of 1960 and a decline of 18 per cent from the closing price in 1959.

The financial experts have thus been consistently wrong both in their predictions as to the bond and stock market 1962 trends. They dogmatically promised a decline in bond prices and a rise in stock levels, particularly in the earlier part of this year. Just the opposite has come to pass in both cases. Furthermore this contrary movement has been quite consistent throughout 1962 to date, the bond price improvement occuring in each of the five first months of the year while stocks have reflected a decline in four of the five months.

Lower demands for money and a general recognition that the boom in the economy is not proceeding at as sharp a pace as generally anticipated when the year began, probably account for much of the bond price improvement. The persistent fall in stock prices has seemed harder to account for. It has occurred in the face of higher first quarter earnings and a more or less constant flow of generally improved statistics on the national economy. Yet these favorable factors have been unable to stem a continuous and considerable decline in all the leading stock averages over the past 90 days.

We think it is increasingly being recognized that what is fundamentally wrong with the stock market is not primarily the cessation of inflationary pressures or fear of the Administration but the excessive number of times at which stocks have been (and are still—in many cases) selling in relation to their earnings and dividends. When the glamor stocks broke so badly in the last six months, it began to be gradually realized that these had been the stocks selling at the most fantastically high price-earnings ratios. Accordingly, investors and analysts began to look around to see what other stocks had this unusually high ratio, and the ensuing pressure on these latter stocks caused them, too, to decline.

In the writer's judgment, the price earnings ratio adjustment is far from having been completed. Many of these ratios are still phenomenally high and seem to need correction badly. If a stock is selling at 40 times its last year's earnings (say at $40.00 a share) improvement in the company's earnings by 20 per cent (which automatically adjusts the ratio to 33.3—assuming no change in price) will not buoy up the stock if the investing public has reached the conclusion that 25 times earnings is the maximum at which the stocks should sell. In that case a further price decline (to about $30.00) is indicated.

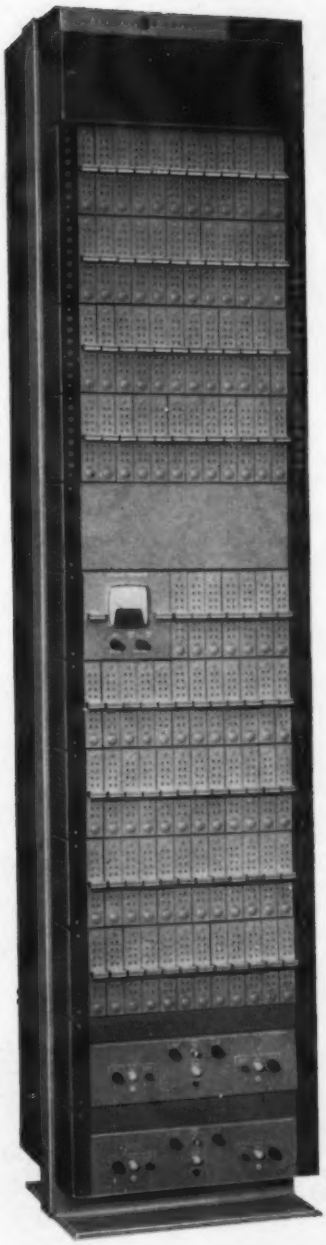
Utilities have borne their share of the selling in recent weeks. The prices of many of them are at or near their yearly lows.

* * *

RECENT NEWS FAVORABLE TO ECONOMY: The most recent news as to retail sales, housing starts, auto sales and industrial production was all highly favorable—the best for some time past. However, the monthly May letter of the First National City Bank of New York on Business and Economic Conditions expresses disappointment that the increase in first quarter 1962 earnings for about 1,000 non-financial corporations was down 9 per cent from the previous quarter, although 29 per cent ahead of the first quarter of 1961—which represented the low spot of the recession.

TELECOMMUNICATIONS

General Electric Transistorized Microwave and Carrier Systems gain wide acceptance

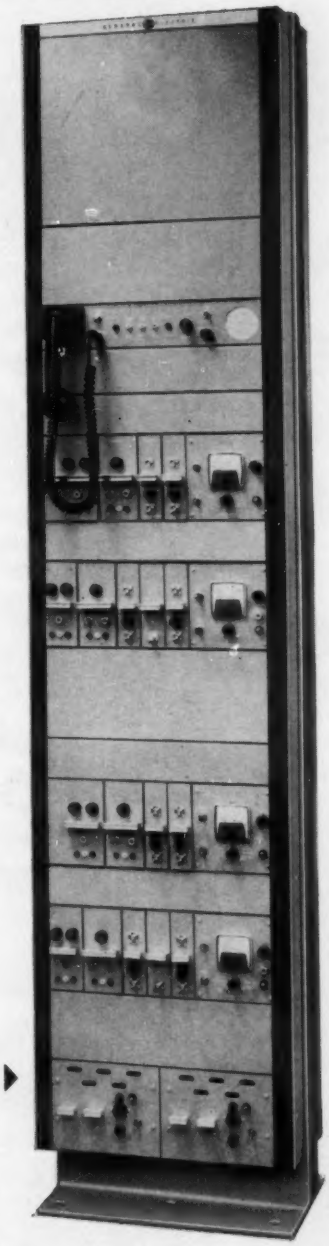


Among those companies that have already selected G-E telecommunications equipment are Western Union, New York Telephone Company, Florida Telephone Corp., Parker Valley Telephone Company, Highland Telephone Cooperative and United Telephone Company of the West.

Also, check into the new General Electric TDS-90 high-speed data transmission system.

◀ TCS-600 Carrier Multiplex System

TRS-660 Microwave Radio Equipment ▶



For complete information on General Electric transistorized telecommunications systems, call W. E. Evans, Area Code 703, 846-7311, or write Section 3561-2, Communication Products Department, General Electric Company, Mountain View Road, Lynchburg, Virginia.

GENERAL ELECTRIC

THE TRAFFIC PAGE

By WINNIE BURNETT

HOW WELL DO YOU LISTEN? Most of us spend a great deal of time listening to other people. In fact, the so-called white collar worker usually devotes at least 40 per cent of the day to listening. Whether the time is spent listening or reading, it is wasted unless we absorb what we hear or read. Yet, we find that only about 25 per cent of what we listen to is retained—or even registers!

Certainly in the business world of telephony, the art of learning by listening is important, for much of our instructions are given vocally. There are many good listening techniques that can be used to help retain the meaning of what you hear. A good course of training in listening would probably help most people acquire the art of retentive listening, however, there are a few techniques I try to use —and they do hlep. Here they are:

(1) Listen for something that may help you. If you do this you are bound to be interested. Being interested is most important.

(2) Sit or stand straight, don't loll or lounge lazily, because listening is work. If your posture is too relaxed, then your attention is apt to be relaxed. Assume the "posture of attention," one of the first steps to learning through listening.

(3) Do learn to listen to *what* is being said rather than the *way* it is stated. A poor tone of voice or unwise combination of words may be the speaker's fault, but poor listening is your fault.

(4) Don't let minor distractions take your mind off the speaker's subject. Block out distractions; sit in the front row.

(5) If you disagree with some of the things that are said, don't get all shook up about it. The rest of the things the speaker has to say may be right up your alley. If you have thrown up a smoke screen of *"I-don't-agree"* thoughts you may miss some valuable information. Be calm!

(6) Listen for new ideas. Learning new things, even if they are foreign to your particular work, enlarges your general scope of knowledge. Be curious. Curiosity is another important trait for a good listener—along with interest.

(7) Pick out the main points to concentrate on. Jokes and asides may lighten a deep talk, but if you spend too much time laughing you may be left many mental miles back after the speaker has resumed the main tenor of his talk.

(8) Keep your mind open. If you lock your mind, you also lock your retentive faculties. Sometimes a biased person can be so busy guarding his own convictions that he can't hear what is being said.

(9) Compare a speaker's views with your own knowledge. Sometimes inaccuracies are inadvertently stated, or maybe purposely made! So don't believe everything you hear—listen actively.

(10) Listen *ahead*. The average person speaks at a rate of about 125 words a minute. You listen or *think* about four times that fast (of course, you do —you are at least average, aren't you?). So, if you don't think ahead, anticipating what the speaker will say next, you may wander off in a mental fog—losing the trend entirely. Or you might try to *summarize* what you've heard, if you don't think ahead. Review what points have been made so far—some points are made or emphasized by gestures or inflections, so don't be caught napping.

There are many more tricks or techniques that will help you to learn to retain what you hear. Why not try to develop your own method of successful listening! You can learn by training yourself in this valuable skill. You are missing a lot by not listening. Do be "willing to hear."

And to test your acumen, in two minutes rearrange the following letters to spell a new word—*not* a proper name or a foreign word or an unnatural word: O W D E N A R W.

(See answer in Traffic Quiz)

Traffic Quiz

(1) Q. Are calls between the United States and Alaska and Hawaii considered as overseas calls?

A. Such calls are handled in the same manner as mainland United States calls. However, for traffic purposes they are rated according to overseas rate schedules.

(2) Q. When a customer wishes to place an overseas call, should a memorandum ticket be written?

A. If you think a memo ticket will be needed, write one, entering only the necessary details, such as the calling number and the routing directions. However, if a customer is released because of an NC condition, a memo ticket should be prepared. Scratch it when the connection has been made.

(3) Q. What is the proper phrase to use when you announce the call to the overseas operator?

(Continued on page 57)

This coin station was back in service in 15 minutes

After the rain stopped, there was a 100 v. tip and a 40 v. ring ground on the line. The repairman tried to dry out the equipment by usual procedures, but without success. He then removed the wiring clamp at the top of the lower housing, loosened the switchhook assembly screws and sprayed CRC 2-26 into the instrument. This cleared moisture from the switchhook contact, removed and stopped further corrosion in the coin chutes. Trouble was reduced to 30 v. tip ground and 16 v. ring ground. When the terminal face plate was sprayed with 2-26, leakage was reduced to 0.

With 2-26, the repair could have been effected while it was still raining.

In use on telephone equipment for two years, 2-26 has proved effective on switchboards, key systems, coin stations, carrier repeaters, power panels, cable terminals, station protectors, electrical controls, test sets, amplifiers and batteries.

Many costly repairs and replacements caused by moisture and corrosion are now unnecessary. 2-26 effects substantial savings in both time and parts.

To realize these savings in your system, ask your Graybar representative or your local 2-26 distributor for a 2-26 demonstration or write:

Corrosion Reaction Consultants,
116 Chestnut Street, Philadelphia 6, Pa.,
for samples and literature.

CRC FORMULA 2·26 ELECTRICAL INDUSTRY

DRIVES OUT AND SEALS OUT MOISTURE • STOPS CORROSION

Are Your Assignment Slips Showing?

By GILBERT R. BRACKETT

ALL TELEPHONE people are in agreement that line and terminal assignment is unquestionably the most important factor in bringing about and maintaining traffic load balance throughout the dial equipment of an automatic central office. Careful line and terminal assignment is very important to all phases of providing good service at an economical and reasonable cost. In other words, good load balancing obtains the maximum grade of service at the lowest possible cost.

The assignment of various types of traffic to each switch and trunk group must be intelligently administered in order to develop an even flow of traffic in the originating and terminating groups.

Streamlined Practices

Many Independent telephone companies develop their method of number assignment and load balance in accordance with that outlined in the Bell System practices. Generally, the practices are streamlined only to the extent that is considered appropriate to make them adaptable to small and medium-sized offices.

Costly equipment, engineering time, and installation costs to establish trunking paths that will be adequate, will be useless to a great extent if the number assignment procedures are not carefully thought out and followed, so that equal load distribution will flow into the linefinder and connector boards.

Many lines have different calling rates, holding times, and busy-hour periods. Some are far more busy than the average while others fall below the average. By mixing these lines, an average load per line can be directed into the linefinder board.

Slater Article Praised

Basically, such distribution is arrived at by assigning the same number of lines to each line group, keeping the percentage of each class of service—B1, R1, B2, R2, R4, etc.—as nearly as possible the same in each linefinder group.

An excellent article, "Fundamentals of Line and Connector Terminal Assignments" by Elmer W. Slater in the Dec. 30, 1961 issue of TELEPHONY, gives further proof of the need and desirability for following a carefully planned and supervised assignment schedule.

Number assignments are clearly related to traffic distribution and it is very important that the initial and following assignments should be divided equally between the various groups so that the traffic load can be handled by the equipment without friction.

Should Have Technical Knowledge

People in charge of dial administration should have some knowledge of the technical equipment operation, the capability of understanding the arithmetical processes involved and ability to interpret statistical data. They must also have the delicate skill to work harmoniously with other departments, to use good judgment when contacting the public, and they should be resourceful and filled with curiosity.

G. R. BRACKETT

The dial administrator fills an assignment of great importance, both from the standpoint of providing better telephone service and bringing about more efficient use of the dial equipment. The importance of the job is stressed when it is brought to mind that 90 per cent of the calls originated by customers served by dial offices are handled entirely by dial equipment and the other 10 per cent can not reach an operator or desk without being routed there by this equipment.

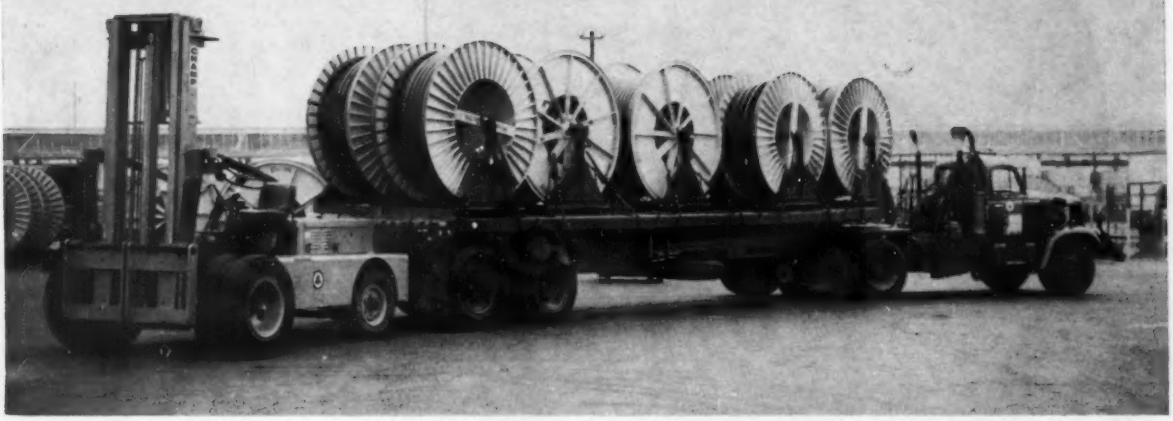
Service Objectives Guide

The person in charge of the administration of dial equipment is responsible for the supervision of this traffic and for obtaining service results that conform to over-all objectives. The heavy investments in equipment require that it be properly loaded and balanced and, with the increasing demand for telephone service, the dial administrator will be challenged in directing the dial organization to give the best grade of service while utilizing the equipment to the highest degree.

It is extremely important that the forces which devote their time to assignment work should have a guidance plan in the selection of lines and numbers to be used for allocation of reassigned and new numbers. The person in charge of the assignment forces should establish objectives by line groups and classes of service for assignable lines.

The occasional check of traffic balance among all groups of equipment, especially in the heavily loaded offices,

SAVE TIME AND LABOR IN REEL HANDLING...



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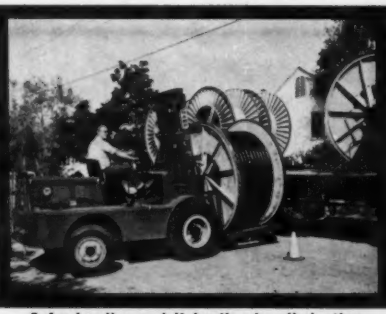

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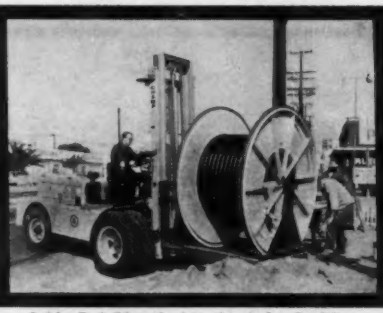

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Versatile Handling of a wide variety of jobs —salvage cable, poles, switch-boards, etc.

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would insure a proper group balance. Assignment records must be well maintained and a periodic inspection of their contents should be made so that a proper appraisal of the over-all assignments can be made.

Data Secured Periodically

Traffic data should be secured periodically and accumulated regularly so there will be a continued awareness of the loads carried by each switch group. Controlled assignment of terminals will assure that the load balance will be maintained.

The Carolina Telephone & Telegraph Co. of Tarboro, N. C., has this to say about the assignment problem:

"We agree with you that line assignment is a major factor in maintaining a good load balance, and it is very important to all phases of our operation in providing good service at an economical cost. The Carolina Telephone & Telegraph Co. makes regular studies of the traffic characteristics of its various offices by origination and terminating switch groups. However, we do not break this down by studying the class of services, because all of our switch groups, both line and terminal, have mixed classes of service.

Policies Not On A Day-to-Day Basis

"Traffic data is secured periodically and accumulated regularly so that we are continually aware of loads carried by each of our switch groups. Our data, of course, is more frequently taken in our attended offices than in our unattended offices.

"Service orders generally are not analyzed to detect any changes which might affect group loading. However, the load balance is maintained by controlling assignments that may be made in switch groups.

"Office load policies generally are not developed on a day-to-day basis. However, attempts are made to keep the loading of groups, both originating and terminating, throughout the office as nearly equal as possible and to install at a predetermined time additional equipment at such a time as our traffic engineered capacities may be reached."

In answer to the question, "What is the main cause for most group unbalances?" the Carolina company spokesman replied:

"In our estimation, the cause of most unbalances occurs primarily in our switch groups equipped for rotary service where the growth of business trunk requirements exceed expectations.

"Then, of course, group unbalances occur when additional equipment is installed, particularly terminating, and no change of numbers is made. However, these two items, we feel, do not cause any serious overloading or unbalanced conditions, and, normally, through our service order activity and assignment practices, we are able, within a relatively short period of time, to re-establish a balanced condition throughout the office.

"We would recommend, under normal conditions, that attempts to balance equipment be based on the proper line assignment procedures and that, whenever possible, because of the public relations aspect, telephone numbers not be changed because of temporary unbalanced conditions. We in this company do, however, take advantage of any two-five number or ANC number changes to rebalance switch groups when and where required."

Tennessee Company Reports

A representative of the Inter-Mountain Telephone Co. of Bristol, Tenn., commented on its number assignment activities as follows:

"Essentially our practice is in accordance with that outlined in the Bell System Traffic Engineering Practices. These practices have only been streamlined to the extent we feel appropriate to make them adaptable to small and medium-sized offices without materially affecting the underlying principles.

"The number assignment in our company is under the general administration of the traffic engineer and is done by traffic clerks in each district office. The group has been able to maintain a reasonably high grade of service, while keeping the equipment at or near maximum fill. In most offices, the line and connector terminals are 95 per cent or more in use before additions are made.

"I would say that probably the greatest cause of load unbalance would, of course, be the lack of proper dial office administration. However, even where suitable procedures are in affect, there may be instances in a step-by-step office where a service problem arises. This may be due to local conditions, such as an increase in calling rate because of unexpected changes in industry, military, or tourist traffic. In such a case, it might be necessary to rebalance the load by moving lines to different linefinder groups, which is not too difficult in terminal-per-station offices equipped with a line intermediate distributing frame. We feel that a L.I.D.F. is advantageous in any office which is subject to growth or fluctuation."

All telephone companies agree that the fundamentals for good line assignment is to engineer linefinder and connector requirements based on calling rates and holding time. Some have found that the engineers for the equipment companies can be very helpful to small companies in this respect.

One company not only takes frequent dial office peg counts to check traffic balance in groups, but, in addition to the data secured by peg counts, this company also makes a customer survey by telephone covering all dial customers at least once a year. The latter tells the customer's story on "no dial tone," toll service complaints, or other factors of operation which are not apparent in dial offices except through customer contacts.

A spokesman for the General Telephone Co. of California has this to say, "Where the traffic is evenly distributed over the line equipment, the engineered capacity of the office can be approached or reached without adverse effect to the subscribers. Thus, through balanced loading of line equipment and proper trunk administration procedures, maximum utilization of central office equipment can be obtained.

Study Every Three Years

"At the present time, it is the policy of this company to make a complete traffic study at each central office at least every three years and study inter-office trunk groups at least once a year. When a complete traffic study of a central office is made, all stages of switching are measured from the line groups to the connectors and the line group data carefully analyzed by class of service.

"Our company policy is to equip central office equipment with traffic meters as follows:

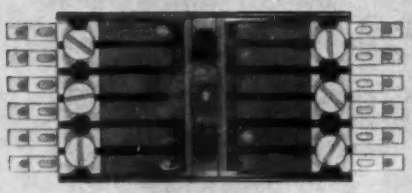
Type of Equipment	Type Meters
Line Groups	All-Trunk-Busy or Dial Tone Delay
Selectors	Last-Trunk-Busy
Connectors	Lost Call

"In addition to above, each inter-office group is equipped with peg-count meters. Our experience indicates that the traffic studies and installed meters, as indicated above, produce sufficient information to perform an adequate job of traffic engineering and trunk administration.

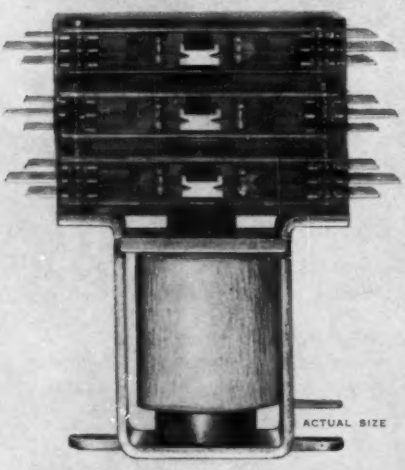
Data For Assignment People

"The assignment people are periodically provided with the data for each line or connector group. In this manner they are able to determine which groups should or should not have additional subscribers added or, when

A new concept.



This dust-tight, see-thru wafer has 12 circuits.



When "Tri-Stacked" on this T-Bar™ Relay 36 circuits can be controlled simultaneously with minimum power consumption.

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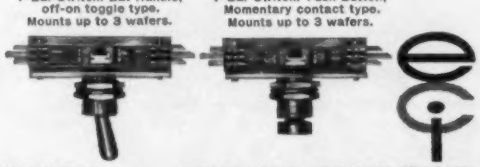
A totally new concept, T-Bar is a small package D. C. relay designed for big circuit control jobs. From 2 to 36 circuits can be actuated simultaneously by means of removable wafers. Each wafer contains up to 12 circuits and may be used in single, double or triple layers. Only 3½ watts control 36 circuits. Proportionately less with fewer circuits. Reliability and long life were built into T-Bar when mechanical parts were built out. Installation of T-Bar is simple . . . drill two holes. We've found these to be some areas that put T-Bar to good use: Network Selection, Telephone System Switches, Matrix Decoding, Control System Time Sharing, Punch Tape Reading, Computer Storage. Examine your needs, then write for bulletin TB-112.

T-Bar Switch. Bat Handle, off-on toggle type. Mounts up to 3 wafers.

T-Bar Switch. Push Button, Momentary contact type. Mounts up to 3 wafers.



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necessary, transfers made from one group to another. An effort is made to maintain an even distribution of each class of service over all line groups. However, we are of the opinion that this in itself is not sufficient and, therefore, traffic loads should be heavily weighed in order to maintain a constant balance over the equipment.

Our experience indicates that one of the chief causes for unbalances in the line equipment and the levels of the first selectors, is assignment without knowledge of the traffic loads and failure to follow the established class of service assignment patterns. If we are to achieve maximum utilization of central office facilities and maintain adequate grade of service, it appears that greater emphasis must be placed upon the establishment of assignment matters and the observance of dial loads.

Avalanche of Calls

When a new dial office is cut into service there is an avalanche of calls for preferred numbers. The only preferred number requests that should receive consideration are those special connector terminals assignments for fire, police, ambulance and other such telephones that have to do with the welfare of the community. It is not advisable to commit any specific number combinations to prospective users prior to the over-all assignment work. The preferred connector assignments often solicited for advertising purposes and other reasons by business firms and individuals should be held until all other assignments have been completed. The reason for such carefulness will become obvious as the assignment work progresses.

Should an office have insufficient line equipment and numbers to give service to all who wish it, the maximum use of all equipment should be checked. Equipment held out of service for special purposes should be restored to use. Perhaps assignments can be speeded up through modification of service order routines, such as furnishing smaller lists of available numbers or even assigning numbers individually if necessary.

Numbers for which incoming calls are still received could be used but these must be carefully screened and those numbers with the lowest calling rate used first.

Should Notify Customers

It might even be necessary to reassign disconnects immediately but, if so, judgment must be used in special cases to avoid unsatisfactory service reactions. When numbers are reassigned immediately, it would be well to notify the new customer and advise them of the name and new number of the previous subscriber for the transfer of calls.

Because of the adverse effect of unbalancing, which increases with heavier loading, the line assignment job looms most important and calls for close attention and careful administration, especially in offices experiencing extreme traffic.

The person in charge of line assignments should be familiar with service order procedures, line assignment routines, intercept records and routines. He should be aware of the most practical and effective routine for assigning lines so as to distribute traffic evenly over the various groups, and of maintaining a complete current record of the status of all originating and terminating equipment.

He should know thoroughly how to recognize an order involving a connect, disconnect, change of rate, class of service, etc., and how to sort and file orders.

Should Know Assignment Records

He should be familiar with line assignment records that are used in administering the line assignment routines for the type of equipment he supervises. He should be responsible for:

(1) The selection of available numbers for assignment.

(2) Classification of available numbers according to their availability for residence or business use.

(3) Treatment of numbers that are likely to be called in error.

(4) Assignment of numbers formerly used by business or persons of public prominence.

(5) Intercepting policy—treatment of disconnects and changed numbers.

While customer instruction may not be looked upon as belonging to the dial administration job, it is primarily a responsibility of the traffic department and should be incorporated into the dial administrative practices.

Customer Instruction Needed

The advantages to the customer of speed and accuracy inherent in dial operation can be fully realized only if the customer is adequately informed on how to use the dial telephone. The object of a customer instruction program is to educate the customer to use the dial correctly.

The extent of the dial customer instruction work varies quite widely between cities and areas. Among the factors which undoubtedly have an influence on this variation are the complications of flat rate versus message rate service; the percentage of customer dialing irregularities; the dial complications incident to large cities as compared with small city or single office operation; the introduction of Direct Distance Dialing (DDD) and such other factors as may be peculiar to local conditions. Therefore, the assignment supervisor could be trained to recognize:

(1) Good customer dialing performance is a necessity if we are to give the customer satisfactory service.

(2) Accurate dialing reduces annoyance to other customers.

(3) Accurate dialing also reduces operating costs by reducing equipment usage on faulty attempts, and reduces billing adjustments.

(4) Increasing use of DDD in many areas and unfamiliar and infrequently used central names make it essential that everything possible be done to promote careful and accurate dialing habits.

Encourage Group Discussions

Group discussions with customer instructors from other districts or divisions should be encouraged. Cooperating with other departments on publicity matters, such as newspaper advertising, radio spots, bill inserts, motion pictures, etc., will pay dividends.

There are many sources of information on subscribers who are prone to make dialing errors. The following sources of instruction data are the most commonly met with:

(1) Assistance calls. Customers who dial the operator and indicate they have experienced trouble reaching a number. It is important to offer instruction as soon as possible after a dialing error is made. The approach should be tactful and sympathetic, displaying a personal interest in the customer's problem.

(2) Zero intercept is useful in offices equipped to intercept calls where the customer dials zero for the letter "O" as the second letter of the office name.

(3) Customer dialing errors brought to light by service observations represent a very small percentage of the total faulty usage in an office and generally should be used only in conjunction with other information.

(4) Intercepting positions disclose customers who repeatedly reach intercepting on calls to okay numbers.

(5) Vacant code calls indicate customers who have dialed vacant

(Continued on page 57)

DELCO RADIO, Division of General Motors, introduces the new, low-cost . . .

DELCO-COM PLANT MAINTENANCE SYSTEM

Now, a totally new, two-way FM mobile radio system for plant maintenance vehicles that combines compact efficiency and attractive design with reliable, low-cost multi-channel operation. It's the DELCO-COM mobile radio . . . especially designed for telephone company vehicles and for your customers who need an inexpensive private mobile radio system.

Compare these features with any other two-way plant maintenance system and you will find DELCO-COM outstandingly superior:

1. Four-channel capability with push-button control. DELCO-COM allows you to put trouble crews, maintenance shops, construction crews, supply vehicles and dispatching offices on the same radio network.
2. Two simply constructed basic units – the control and R-T units – for fast installation and low cost. One plug-in control-power cable connects these two compact units with the vehicle battery.
3. A push-to-talk microphone that clips onto the control unit *or* any other part of the dashboard.
4. A speaker built into the control unit eliminates the need for a separately mounted unit.
5. Attractive styling and compact design – over-all control unit dimensions are only 6½" wide, 8" deep and 4¼" high (including brackets). It fits anywhere on *or* under the dash without disturbing the interior appearance or operation of the car or truck.

In addition, DELCO-COM has low power drain and controlled squelch.

Consider DELCO-COM for your company's and your customers' vehicles. A Delco sales engineer will demonstrate this new equipment at your convenience. Write or call Delco today.

SPECIFICATIONS—FCC Type Accepted

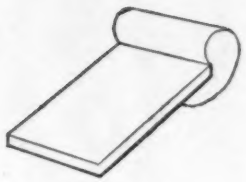
Receiver-Transmitter: 144-174 Mc, 2-channel (max.), 4-channel (max.) models available
RF output: 22.5 watts into 52 ohm load
Audio output: 1.5 watts into 4 ohm load (Less than 5% distortion)
Frequency Stability: within 0.0005%
Size: Receiver-Transmitter, 21¼" x 8⅞" x 6¼"
Control Unit, 6½" x 4¼" x 8"
Weight: 35.25 pounds, including Receiver-Transmitter, control unit and interconnecting control-power cable

DELCO-COM

TWO-WAY MOBILE RADIO SYSTEM

Delco Radio Division of General Motors
Kokomo, Indiana
Gladstone 2-8211 (Area Code 317)

The Plant Man's NOTEBOOK



By RAY BLAIN, Technical Editorial Director

ACTION WILL be taken this summer to board up all windows on an elementary school in Wayne, Michigan. Then, throughout the 1962-63 academic year, pupils will attend classes in the boarded-up building. During the summer of next year, the boards will be removed and during the ensuing school year, the youngsters will once again be able to glance outside occasionally as they sit in the classrooms.

These strange actions are a carefully planned experiment intended to help settle a dispute within the construction industry, architects, educators, psychologists, and various other groups. The controversy is: What's the impact of the growing number of windowless buildings on the morale and efficiency of the students and workers who inhabit them? In the Wayne test, researchers will seek to provide at least a partial answer to the question by making careful comparisons of the performance and attitudes of pupils during the windowless year with pupils' records after the windows are uncovered.

The results of this experiment should prove to be extremely interesting to the telephone industry. Windowless buildings appear to possess numerous advantages for the telephone exchange. The absence of windows reduces heat and cooling bills and helps eliminate dust hazards. Some claim, however, that the absence of natural light has a depressing effect even though artificial light may be the best obtainable. Others contend that operating rooms especially should have windows so that operators may have a look outside occasionally. In our opinion, a busy operator would have little time for this pleasure anyway. In most of the operating rooms we have seen, the backs of the switchboards are toward the windows blocking the operators' outside view completely.

A study of a large windowless office building indicated that the workers were making more than the average number of trips to the rest rooms. It was finally discovered that the majority of these trips were to make a check on the weather from the outside windows in the rest rooms. Corrective action was taken in this instance by broadcasting a weather report over the public address system several times daily.

•

The employes of the General Telephone Co. of Florida, central division, have received special awards by the National Safety Council and the Florida Industrial Commission for working 1,289,530 hours without a disabling injury. This is the first time an exchange area of this company has worked a million man hours or more without a disabling injury.

A. Worley Brown, Chairman of the State Industrial Commission, presented the State's Award of Outstanding Achievement to central division manager Phil G. Schudder at a special ceremony held in Tampa. All division plant personnel attended the ceremony along with President Fred Learey and other company officials.

At the same time and place, the Award of Merit was presented by a representative of the National Safety Council to the central division for the outstanding record accomplished from September 1, 1961 through February 15, 1962.

In 1957, and again in 1959, the company received awards for employes working a million or more man hours without a disabling injury, but this is the first such award on an exchange or division level.

Earlier this year the company received from the National Safety Council the first place award in the communications industry, public service section, for its accident frequency rate per million man hours of 2.21. This is the highest safety award ever received by the company.

•

A power company in California is presently making tests on a new concept in dampers for wind-induced vibration of aerial lines. This new type damper consists of a slit tube of neoprene sponge covered by a split cast-iron casing. The damper fits around the wire or cable. Above the resonance frequency, the casing remains stationary in space while the sponge dampens and resists any wire motion.

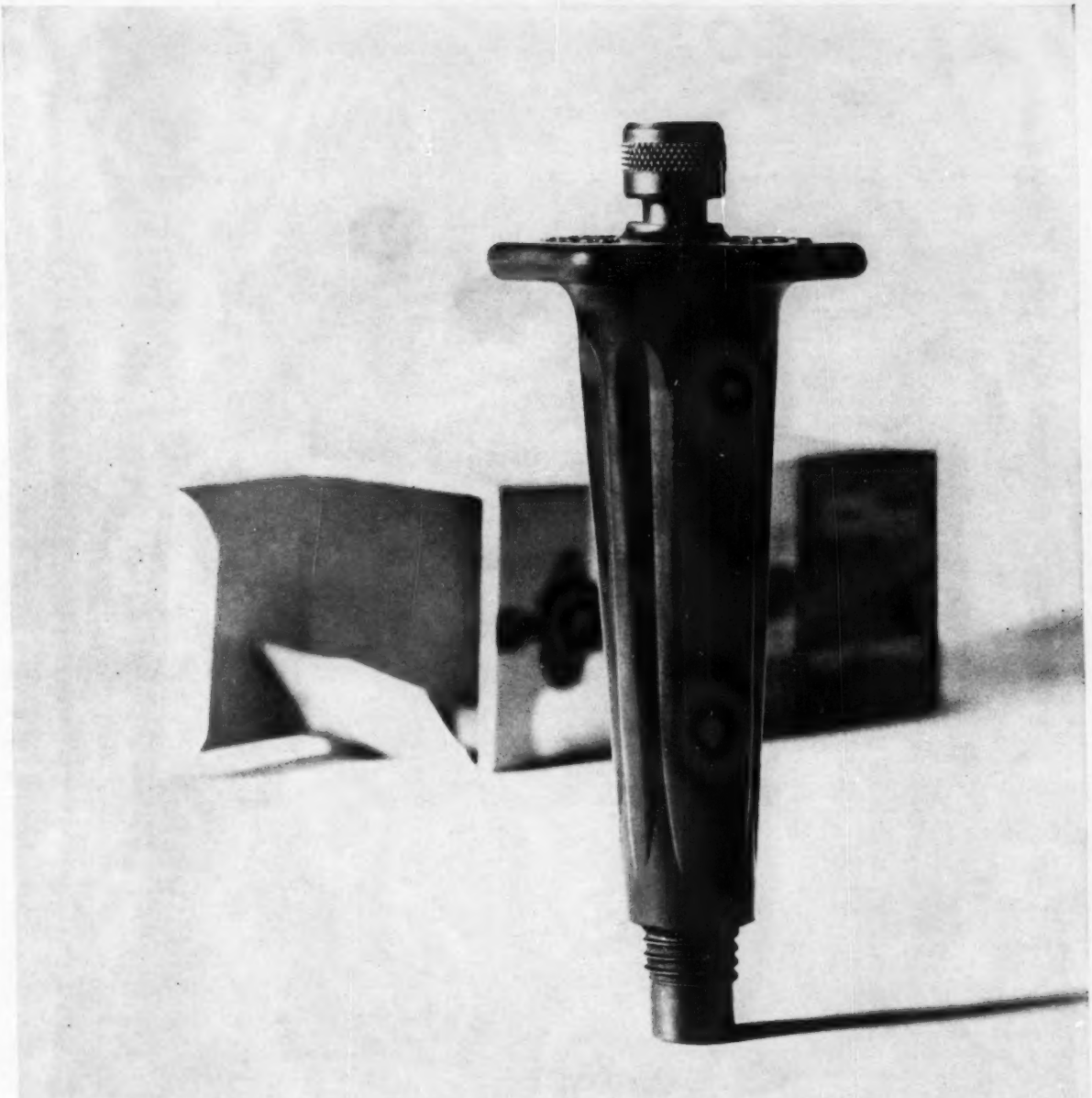
Preliminary examination of the test that the damper is effective as the conventional type at low wind velocities, and increasingly more effective as wind velocities increase.

•

If you will note any Bell System advertisement that pictures a telephone—and you can read the number—it will be 311 555-2368. This is the new Bell System universal fictitious number. The number previously used for this purpose was MAin 0-2368. This number did not carry any area code and TV and movie producers contended that it did not have a realistic appearance or sound. For this reason, a search was begun for a new fictitious number. This was not an easy task for Bell System engineers and number experts.

In the first place, this number must be completely "safe" against dialing in any part of the country. Telephone companies all recognize their responsibility to protect their subscribers from crank calls or just plain curiosity calls. It has been proved that when a telephone number is mentioned, or shown in any of the mass media, an amazing number of people will attempt to call it. Some of these callers manifest a sadistic sense of "humor" to the person who answers.

A number which may be completely safe for one city, or one section of the country, may be a working number somewhere else. Frequently producers or writers (understandably not familiar with the national numbering system) will select their own dummy number. Then the telephones begin to ring, and telephone subscribers are in-



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(anchors metal to concrete with no sweat)

If you're not using a Shure-Set® tool, you're working too hard. Shure-Set lets you anchor wood or light gauge metal to concrete with 5 or less hammer taps. Just slip a Shure-Set fastener in one end. Strike the other with a hammer. Rap-rap-rap-rap-rap. It's done. A built-in piston concentrates the energy of the hammer blow, drives the fastener through the work. No drilling. No expansion devices. No powder charges. And no sweat. Shure-Set tools and fasteners are available from your local Ramset or Shure-Set dealer. He's listed in the Yellow Pages, under "Tools."

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convenienced and annoyed.

Furthermore, a dummy telephone number that is completely safe today cannot be guaranteed against change. For example, "MAin 0-2368", which was the Bell System's advertising workhorse for about 12 years, is now out of the picture because "620" is a central office prefix in California.

A further complication is caused by old movies that reappear on TV screens. Many of these show numbers that were safe years ago, but have since become working numbers.

Besides being safe, there are other exacting requirements for a good dummy number. It must *look* like a real number. Four or five zeros, for example, are out. Then, too, when letters are used, they should suggest a real exchange. The central office prefix (the KL5 portion) must be translatable from the letter-number style into All-Number Calling to meet the modern and increasing ANC system. The area code, also, must have an authentic appearance.

"Area Code 311 KL5-2368", the universal fictitious number recently selected, meets all of these specifications. ANC-style, this translates into "311 555-2368". This number dead-ends to an intercept operator in every United States and Canadian telephone area. There just isn't any such number—and never will be as long as the present universal number plan exists.

•

Development engineers in the communications industry are presently making an all-out effort to develop connectors for attaching plastic insulated wires to terminals without previously removing the insulation. One phase of this development is for the tool that makes the connection first to remove the insulation in the one operation. Several successful devices are now on the market that will pierce or crush the insulation at the time the connection is made.

Not only is the removal of insulation an expensive operation, but fine gauge wire may also be damaged in the process. Actually, when the connection can be made without first removing the plastic insulation, it not only saves time and money but a trouble-free connection will also reduce later maintenance costs.

"Cross Talk"

When right, we can afford to keep our temper; when wrong, we can't afford to lose it.

•

The Lord giveth, but the tax collector taketh away.

Plant Man's QUIZ

By RAY BLAIN, Technical Editorial Director

Q. Why is it necessary to provide a better grade of maintenance of equipment and lines for DDD service than for manual operation in the provision of toll service?

A. When long distance calls are placed by an operator, an immediate check is obtained on the transmission quality of the circuit and this tends to prevent the use of low quality circuits. In DDD however, the operator check is eliminated. Moreover, the number of links which can make up the circuit is, in most cases, materially increased. Each additional link adds potential transmission deviations. If the transmission quality is low, calls either do not get through, thus blocking traffic, or they result in conditions where the customer is billed for a connection on which the "supervision" signals are working, but over which an actual telephone conversation is not possible. To complicate the condition further, there is no way in which a customer can "hold" a faulty circuit while calling an attendant to check it.

In order to insure the complete success of direct distance dialing it is, therefore, necessary to reduce the chance of encountering faulty circuits to a negligible amount. This requires a considerable increase in scope in the preventive maintenance program to insure transmission quality. Transmission measurements will need to be made more extensively and frequently in the future and this will require a considerable increase in the transmission testing facilities usually available in the average exchange.

•

Q. Suggest a good book on the design, maintenance and use of relays.

A. It is suggested that you obtain a new book authored by Harvey Pollack, titled: "Basic Principles and Applications of Relays". This text offers a comprehensive discussion of relay construction, operation and application at the technician's level. In the initial chapter on "Electromagnetic Relay Construction," the various components are discussed from their operational viewpoint.

A second chapter on "Relay Contact Arrangements" analyzes relay coils, relay contacts and current differential.

Also discussed are forms of relay contact arrangements and other applications in relay circuits. A separate chapter is devoted to circuits for DC relays, including rectifier arrangements, selected circuits, and contact protection.

In the chapter on "Relays in Timing Circuits," various types of thyratron circuits are shown, together with their electronic relays; various electronic time delay relay circuits are discussed; and practical applications shown. The final chapter covers: "Considerations in Selecting and Applying Relays".

This soft cover book of 112 pages may be purchased from TELEPHONY for $2.90.

•

Q. Is it considered advisable to make periodic visual inspections of dial switching equipment as a part of a preventive maintenance procedure?

A. One manufacturer recommends that periodic inspections of the equipment be made to detect minor defects and signs of worn, damaged or corroded parts which may later cause trouble. Although these minor defects may not have interfered with the performance of the equipment, correcting them before they lead to major breakdowns saves valuable time and effort.

It proves most desirable to become thoroughly familiar with the indications of normal functioning so that the first signs of defective equipment can be recognized. Inspections consist of observing all parts of the equipment carefully; noticing their color, placement, state of cleanliness and signs of wear or corrosion.

Men who know the telephone industry, know Puregas' record of accomplishment in the development of refrigerator type pressurization equipment. Long experience in providing practical pressurization service that is performance proved in exchanges and systems all over the world, has helped Puregas engineers lead the field in advancing the state of equipment design. Puregas equipment also quickly pays for itself through substantial accrued savings from reduced cable maintenance costs . . . another reason why Puregas is Foremost in Pressurization Equipment Demand.

MODEL 600 AIR DRYER
This economical "Packaged Pressure Source" was specially designed for small telephone exchanges, CDO's, repeater, toll cable stations, railroads and other various communication networks. This unit, providing 600 std. cu. ft. of dry air per day, is available with a factory mounted meter panel . . . **Bulletin 230.**

MODEL 600 PM AIR DRYER
Designed for outdoor operation, this pole mounted 600 std. cu. ft. per day unit supplements central office equipment as a booster pressure source on long cable runs . . . **Bulletin 240.**

MP25A METER PANEL
Puregas Field Proven Meter Panels measure and distribute pressurized dry air to toll, trunk and exchange cables. The MP25A will determine when maintenance is required on the outside cable plant . . . **Bulletin 300.**

MODEL 750 AIR DRYER
A 750 std. cu. ft. per day Pressure Source available to pressurize small to medium size exchange cable plants . . . **Bulletin 201.**

MODEL 1500 AIR DRYER
This 1500 std. cu. ft. per day unit is sized to pressurize cable plants of medium to large telephone exchanges . . . **Bulletin 211.**

MODEL 5000 AIR DRYER
This 5000 std. cu. ft. per day Dry Air Source will pressurize the cables of large telephone exchanges and central offices . . . **Bulletin 220.**

For further information, contact your local distributor, or send coupon below for the complete PUREGAS "Cable Pressurization Catalog".

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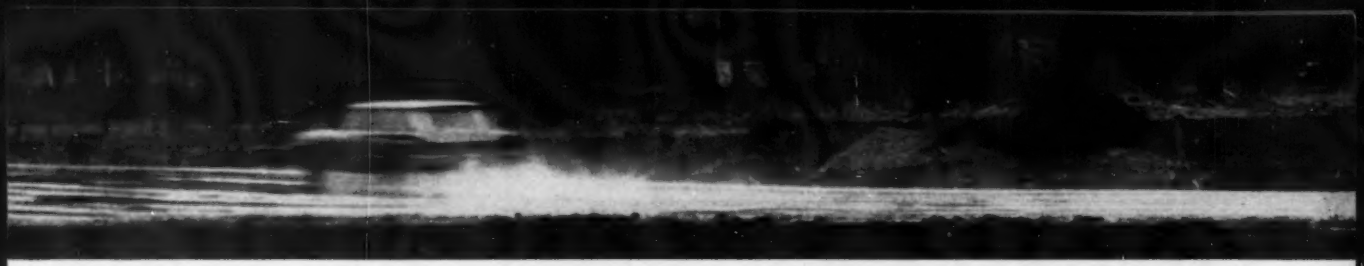
People on the move need paystations



People need paystations. Every 24 hours, Americans travel over a billion miles on wheels alone. You see the result of this movement everywhere—in shopping centers and parking lots...in gas stations and drive-ins...in motels and new roads. And, in each of these locations, people need quick, convenient communication. They need paystations!

What are the best spots for paystations in your area? It's easy to find out. Write for a free copy of our handy Survey Simplifier. It helps you find the best spots for paystations in your community. For your free copy, just write Automatic Electric Sales Corporation, Northlake, Illinois. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.

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GENERAL SYSTEM

Growing Competition Hit Hard at Hoosier Convention

The Telephone Man of the Year citation awarded annually by the Indiana Association being presented to E. S. Welch (left) of the Indiana Telephone Corp. of Seymour, Ind., by Indiana Association President L. H. Meyer. The citation was "in recognition of a lifetime of distinguished service in the telephone industry" by Mr. Welch, who started his telephone career in Tennessee in 1901.

By NORMAN KOLIN*

THE FORCES of competition upon the telephone industry were hit hard by all major speakers at the 42nd annual convention of the Indiana Telephone Association at the Claypool Hotel in Indianapolis on May 8-10.

L. H. Meyer, president of General Telephone of Indiana and outgoing association president, in his talk on "Our Fundamental Obligations," first called attention to the "surprising progress of our industry in Indiana," in just the past two years. A survey he authorized showed, as of December 1961, 1,821,000 telephones in service throughout the state of which 95.3 per cent were dial-operated. In the last two years, 100,000 telephones were converted from manual to dial; 211,000 telephones were added to the Direct Distance Dialing network, and 73 exchanges provided with Extended Area Service networks.

The investment of 134 million dollars in construction during these two years "signifies that the telephone companies of this state are moving aggressively forward. . . . Few other Indiana industries expend money at the rate of six million dollars per month to improve and expand their plants," Mr. Meyer said. He urged telephone companies continually to appraise the "kind, quantity, and quality of service that our customers desire."

Inviting Trouble

He stressed that the company that does not maximize the service ingredient as being absolutely necessary for the successful operation of that company is inviting serious trouble. And, of service, Mr. Meyer remarked that "what is good service" must never be measured by company standards but, rather, by subscriber standards.

It means that any company hindered by unsound precedent or inhibited by fear to face reality—will surely fall into a rut of customer condemnation. Once a company falls into this rut of customer disfavor, its profit picture—its wherewithal to improve service in order to pull itself out of that rut, can mean an almost unbearable burden. To avoid such a fate is the very reason why quality service is so very important to all companies.

"However," he said, "our customers must be made to recognize that simultaneous price squeezing and service squeezing pull at opposite poles and, as such, are not compatible . . . it is much better for us within the industry to make the appraisal of service conditions — for us to determine customer desires and willingness to pay for service improvement than it is for the customer or the legislature or the commission to force improved service arrangements upon our companies."

Challenge of Competition

For the second year in a row, the Indiana association president pointed to the challenge of competition: "Manufacturers of specialized communications equipment make no excuses when it comes to calling on our customers and they are doing it forthrightly and with regularity. All of us know of cases, as an example, where private companies have constructed their own long distance microwave systems right under our proverbial noses. This has happened because, for one reason or another, we could not or did not meet the competition. . . . I do not mean, or want to suggest, that we should ever underprice our product, but we do need to realistically and vigorously protect huge sums (already) invested."

And in closing, Mr. Meyer again stressed that "there is at least one last point unfortunately—one understanding—that I sincerely believe continually needs reaffirmation before public assemblies—before employe bodies—before customers and before the public. It is the 'key' that ties everything else together. It is the relationship of prices to service—it is the relationship of profit to service—it is the relation-

*Mr. Kolin is Information Supervisor of General Telephone Co. of Indiana, Fort Wayne, Ind.

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WORLD LEADER
IN BIMETALLIC WIRE

1. ***Pioneered first*** copper-covered steel wire and strand in 1915.

2. ***Pioneered first*** copper-covered steel ground rod in 1923.

3. ***Pioneered first*** copper-covered steel and copper composite power conductor in 1929.

4. ***Pioneered first*** copper-covered steel telephone toll line conductor in 1942.

5. ***Pioneered first*** copper-covered steel .080″ rural telephone line wire in 1946.

6. ***Pioneered first*** aluminum-covered steel wire and strand with a thick cladding of aluminum in 1959.

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ship of new capital to new services—it is that balanced relationship that must exist—one to the other. We must first gain balance and then, once gained, see to it that this balance is maintained.

Investor's Role

"It is the 'truth' of the vital role the investor plays in our industry wherein we need to generate a better understanding. Unless a fair and equitable profit inures to the benefit of the investor from the individual companies making up our industry, those companies without adequate profits will cease being progressive companies. They will cease providing a reliable grade of modern service. As a result, everyone associated with that company will lose—the customers will lose—the public will lose—the employes will lose—and the community will lose. Thus, it is service and profit—profit and service above all others—which I consider to be the most important of our 'fundamental obligations'. These are the matters that are worthy of continuing consideration by each individual company making up this association. To this end, I sincerely commend the important subjects of 'profit' and 'service' to you for action—for thought—and for study."

P. H. Henson, executive vice president of United Utilities, Inc., Kansas City, Mo., in an address entitled, "Competition: Collison or Cohesion?" chose two aspects of competition which he felt "could have the greatest impact of any of the competitive forces mentioned on the future of the telephone industry," yet on which "we have heard little public discussion."

On the traffic panel at the Indiana convention were from left to right: C. N. Smith, Indiana Bell Telephone Co.; C. R. Willis, General Telephone Co. of Indiana; Margaret Boone, Princeton (Ind.) Telephone Co.; L. H. Ridgway, Indiana Bell Telephone Co.; and Barbara Baker, Princeton Telephone Co.

These two are government competition and acquisition competition.

Government in Business

The government owns and operates 15,507 businesses and we are "aware that these businesses incur losses to the taxpayers running to the billions of dollars each year, in spite of the fact that most are tax free, rent free and dividend free," Mr. Henson said.

"Directly related to our business pursuits are the numerous military bases where the communications facilities are government owned and operated. In spite of the inefficient and allegedly inadequate service that is being rendered at many such bases, thus far the government ownership interests have prevented the passage of legislation that would enable operation by privately owned telephone companies," he continued.

Mr. Henson also pointed to dangers not so obvious:

Indirect Competition

"Aside from the growing specter of direct competition, there is the equally insidious and equally rapid growth of indirect competition. The form and extent of indirect competition is not unique to our industry, but instead encompasses the entire business community. With corporate and private tax rates at the prevailing level, you are most assuredly in competition with government. Whenever a third party, visible or invisible, sits at the bargaining table, you are in competition with government. Whenever anti-trust laws are used for political purposes and not economic purposes, you are in competition with government. Whenever commodity or service prices are set by political coercion and threat of reprisal, you are in competition with government . . . a one-sided kind of competition for which there are but a few countermeasures and all of these difficult of execution. . . .

"I submit, however, that we are extending an open invitation for governmental intervention so long as we continue to ignore the consequences of still another kind of competition . . . the acquisition competition. . . . It would be unfortunate, indeed, if the entire industry were to be subjected to further regulation and control because of the questionable activities of a few, and yet, that is a very real possibility today."

Mr. Henson pinpointed the main

L. H. Meyer (left), president of General Telephone of Indiana and outgoing Indiana association president, receives a President's Award from R. R. Hirschman, assistant vice president, Indiana Bell Telephone Co. The award read in part "In appreciation of his devoted and valuable service to the Indiana Telephone Association as President from May 5, 1960 to May 10, 1962".

FOR DIAL PULSING PROBLEMS

MODEL TTS 26A
PULSE SIGNALING TEST SET

FEATURES

- Send pulses from internal oscillator at rates from 6 pps to 20 pps, or external dial
- Wide range of % break control on send pulses
- Measures % break of send and receive pulses
- Single scale meter through internal switching
- Loop or E+M operation
- Dial and Talk functions
- E+M supervisory lamps
- On Hook and Off Hook provisions
- Transistorized oscillator circuits
- 48-Volt DC operation
- Operates in horizontal and vertical positions

Dial pulsing problems are a major factor of complaints in failures to complete calls or reaching wrong numbers. The increasing use of DDD is bringing greater recognition of the need for minimizing dial pulse distortion.

The *Model TTS 26A* is a pulse signaling test set designed to aid in tracking down the sources of trouble in signaling systems. It may be used in central offices, at PBX's, or on subscribers' instruments to generate calibrated signals and also to measure the % break of dial pulses.

It is designed to either send pulses generated by a built-in oscillator or pulses obtained from an external dial; the % break of the transmitted pulses can be varied over a wide range and can readily be measured. In addition, the set measures the % break of pulses received in the circuits to which the set is connected. Signals can be received or transmitted on a Loop or E+M basis.

The instrument can be operated from a power source of 48 volts DC or an external 45-volt dry battery. It can be used in a vertical or horizontal position. A detachable cover includes storage space for cords, small tools, and other items.

The Model TTS 26A consists of an internal pulse generating circuit, provisions for sending signals obtained from an external dial, and a measuring circuit designed to measure the % break of the send pulses generated by the instrument or the receive pulses on the circuit under test. Controls are provided for switching different functions and modes of operation and to calibrate the instrument to eliminate the effects of battery voltage variations.

Other instruments available from Northeast Electronics Corporation include Transmission Test Equipment, Single Frequency and Multi-Frequency Reference Tone Generators, Loop Around Transmission Test Systems, Fault Locator, Singing Point Test Set, Program Amplifiers, and RF Power Monitors.

NORTHEAST ELECTRONICS CORPORATION

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AREA CODE 603 225-6641

reason for the rash of telephone mergers and consolidations which presented a "golden opportunity" to the speculative interests by twisting the meaning behind the government's lending program to small companies. The legislation allows these speculative interests to organize companies which can and do trade on extremely thin equities, carry low-interest debt at the expense of the taxpayers, and make inordinate profits through the sale of stock of dubious quality to unsophisticated investors.

The Holding Company Act of 1935 quieted the turmoil in the electrical and natural gas industries of the late 1920's and 1930's, Mr. Henson said, but "I further submit that if we cannot bring ourselves to police ourselves, the telephone industry will nonetheless be policed."

Looking toward a remedy, Mr. Henson said: "To avoid collision with the government, then, and to avoid further government competition, we must work toward *cohesion* with our own industry. It will not be easy. Neither will it be without sacrifice. Typically, some of the innocent will have to suffer, particularly if certain accounting and financing restrictions are imposed on all. Yet, unless all of us do sacrifice to obtain cohesion in the industry, we will surely permit a few to hold us upon a collision course with government, the possible consequences of which far overshadow the sacrifices necessary."

On the Indiana convention's accounting panel from left to right are M. W. Becker, United Telephone Co. of Ind.; Robert Ahern, Indiana Bell Telephone Co.; Charles Jessup and Ralph Shoemaker, both with the United Telephone Co.

Judge Stanley

Judge Merton J. Stanley of Kokomo, chairman of the Indiana Public Service Commission, covered three main points in his talk to the convention:

(1) The primary responsibility of the telephone company is to provide the best possible service at the lowest possible price;

(2) There are not and should not be precise standards for good service set by the commission; but

(3) Telephone management must set high standards of service for complete customer satisfaction.

Judge Stanley urged management personally to examine their own employes and customers to see whether they, themselves, would be satisfied with the service provided.

Marketing Essential

Marketing is essential in providing the best possible service, he said, because the customer can't decide whether his service is the best possible unless he knows what is available today. Furthermore, the commission chairman said, the customer must become convinced that more telephones, telephones in color, and prewiring will provide complete telephone service and do a better communications job.

"Selling is often the key to really good service," Judge Merton stressed. He went on to state that better communications would prevent many complaints to the commission. If you keep the public completely informed of what you are doing and why, they will be aware that you are meeting not only our present responsibilities but your future ones as well."

In closing, he said that customers will make the decision someday between private and public ownership. The service you give will largely determine their attitude. And he repeated his goal of striving to foster the best possible climate to help Indiana communications companies to expand and grow in a growing community.

Workshops where any member might discuss a current plant or engineering problem were held at the Indiana convention. On the plant and engineering panel from left to right are J. E. McCormick, General Telephone Co. of Indiana; Noah Brower, Indiana Bell Telephone Co.; Fred Stevenson, United Telephone Co. of Indiana; and J. P. Christensen, General Telephone Co. of Indiana.

Defines Marketing

D. L. Schumacher, marketing and sales manager of General Telephone of Indiana, discussed "Marketing-Sales" with the convention attendants. He defined marketing as "an attitude toward the conduct of a business that recognizes that only through complete customer satisfaction can we realize a maximum profit potential."

Mr. Schumacher discussed the various approaches to obtaining a good marketing attitude by the entire work force.

However, he emphasized the importance of conveying the facts obtained from surveys up to top management for analysis, to see whether implementing the results desired will realize additional profits to the company.

In discussing sales, Mr. Schumacher said that through customer market

(Continued on page 58)

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Electroform Drop Wire

- ☐ Steel for strength
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Courts and Commissions

SW States Gets Increases At 3 Texas Exchanges

The Southwestern States Telephone Co., Brownwood, Tex., has announced the following increses at Texas exchanges.

Giddings, 1098 stations, on dial conversion.

	Old	New
One party business	$ 6.50	$11.75
Two-party business	5.65	10.50
Rural business	5.57	7.00
One-party residence	3.65	6.00
Two-party residence	3.25	5.25
Four-party residence		4.50
Rural residence	4.75	5.75

Mt. Vernon, 766 stations, May 1.

One-party business	$10.75	$12.25
Two-party business	8.75	10.50
Residence business	7.00	7.50
One-party residence	5.75	6.75
Two-party residence	4.75	5.50
Four-party residence	4.00	4.50
Rural residence	5.25	5.50

Richland Springs, 167 stations, eff. EAS to San Saba.

One party business	$ 8.40	$12.00
Two-party business	7.20	10.50
Residence business	7.00	7.75
One-party residence	5.40	6.75
Two-party residence	4.50	5.75
Four-party residence	4.00	5.00
Rural residence	5.00	5.75

Preformed Gets Infringement Relief from Fanner Mfg.

A patent infringement suit brought in 1956 by Preformed Line Products Co. against The Fanner Mfg. Co. has been concluded according to announcement made May 23 by Thomas F. Peterson, president of Preformed.

Judge Charles J. McNamee of the Cleveland, O. Federal District Court on May 17, signed the interlocutory judgment in the suit.

In an earlier opinion, issued on Jan. 6, 1960, Judge McNamee held Preformed's dead-end patent valid and infringed by Fanner, but withheld immediate relief to Preformed because of its misuse of the patent.

Supplemental findings present the legal basis for Judge McNamee's conclusion that, as of Aug. 1, 1961, Preformed had "purged" itself of the dead-end patent misuse and had become entitled, as of that date, to relief against continued infringement by Faner.

Fanner, according to the interlocutory judgment signed by Judge McNamee, is permanently enjoined from further infringement of Preformed's dead-end patent. The judgment also provides that Preformed is entitled to damages for Fanner's infringement of the patent since Aug. 1, 1961.

Attorneys for The Fanner company have stated their intent to appeal Judge McNamee's decision, and have filed a $75,000 supersedeas bond to stay enforcement of the injunction while appeal is pending.

Minnesota Commission Okays Rate Increase

The Minnesota Railroad and Warehouse Commission has authorized the Central Telephone Co. of Minnesota to increase telephone rates. This increase is requested to enable Central to meet a plant investment of $4,800,000 plus an estimated 1962 investment of over one million dollars.

Since the current rates were established in 1959, 5,000 new subscribers and 5 new exchanges have been added. This brings the exchange group to 43 exchanges and 32,000 subscribers. The net income to rate base is expected to increase from 4.90 per cent to 5.85 per cent.

The first billing date for the new rates is June 30.

Missouri Commission Okays Telephone Bond Sale

The Missouri Public Service Commission has approved a request by the Capital City Telephone Company to issue and sell $750,000 in bonds to the Kansas City Life Insurance Co.

At a hearing before the PSC May 1 the telephone company stated that funds acquired by the sale are to be used to finance the construction of its new central office addition and to provide capital for expansion and improvement of its telephone service and facilities.

Oregon Commissioner Rejects Company's EAS Plan

The Oregon Public Utility Commissioner has rejected a petition of the Clear Creek Mutual Telephone Co. to establish an extended area service plan between its Redland exchange and the Portland, Milwaukie-Oak Grove exchanges of Pacific Northwest Bell Telephone Co.

The petition was denied after the Clear Creek company took a survey of its customers which showed that less than a majority approved the plan.

Arkansas Commission Asked To Okay Purchase

The Allied Telephone Co. of Little Rock has asked the Arkansas Public Service Commission for authority to buy the Carthage Telephone Co. (Dallas County).

Carthage has about 100 subscribers on a magneto system.

Allied proposes to convert the Carthage system to dial and fit it into the

Just What Is "Free Enterprise?

It has nothing to do with politics or wealth or class. It is a way of living in which you as an individual are important. Little things make up this way of living, but think what you would lose if you ever surrendered it:

FREE ENTERPRISE is the right to argue.

FREE ENTERPRISE is the right to save money if you want, or blow it on a good time if that's what you prefer.

FREE ENTERPRISE is looking on a policeman as someone to protect you, on a judge as a friend to help you.

FREE ENTERPRISE is the right to raise your children as you think best.

FREE ENTERPRISE is the right to speak freely about anything you wish.

FREE ENTERPRISE has nothing to do with how much money you have or don't have, nor what your job is or is not. Free enterprise means the right to be yourself instead of some nameless number in a horde bossed by a few despots. Free enterprise is the sum of many little things . . . but how miserable you'd be if someone stole it from you! —*Pennsylvania General News.*

Allied system. Allied asked the PSC for approval to charge its standard dial rates for small communities when the change is completed.

Oregon Commissioner Okays Company's Finance Plan

The Oregon Public Utility Commissioner has authorized the West Coast Telephone Co. to issue and sell 5 million dollars principal amount of first mortgage bonds, 4⅞ per cent series due 1990.

The company says it proposes to use the proceeds for expansion, construction, extension and improvement of facilities.

SPACE DISCUSSION

Concluded from page 24

and Dr. Everett D. Palmatier, Kenan Professor of Physics and chairman of the department at UNC.

According to Everett H. Hopkins, vice president of Duke and conference chairman, the primary purpose of the symposium was to provide leading businessmen and industrialists in the Southeast with an opportunity to explore the possible impact which the space research program can have on this region.

Telephone Concert Heard by Alumni

Fifty Los Angeles area alumni of the Northfield School for Girls and the Mt. Hermon School for Boys in Massachusetts recently heard a private-line broadcast of the schools' annual Mother's Day concert of sacred music.

The two-hour program was transmitted via telephone line to a speaker system in the home of Mr. and Mrs. Raymond Madison at 1530 Bel Air Dr., Glendale. Alumni in other parts of the country listened to the concert over similar hook-ups.

Asian Marine Cable Approved

The top communications experts from nine Asian nations have approved the proposed 85 million dollar project to lay a 6,000-mile submarine cable from Tokyo to Indonesia by way of Formosa, Hong Kong, the Phillipines, South Viet-Nam, Thailand, Malaya and Singapore. (TELEPHONY, May 5).

Plan the Campaign

"We should every night call ourselves to an account: What infirmity have I mastered today? What passions opposed? What temptation resisted? What virtue acquired? Our vices will abate of themselves if they be brought every day to the shrift.—SENECA.

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Scientist Believes Voice-prints May Be Unique, Unchangeable

YOUR VOICE is so distinctly your own that someday it may identify you just as your fingerprints do today, according to a scientist at Bell Telephone Laboratories.

Lawrence G. Kersta, engaged in acoustics research, told the Acoustical Society of America recently about a project directed toward "voice-print" classification.

The voice-prints are little "pictures" of one word of a person's speech. The pictures reveal the patterns of voice energy in the various levels of pitch—patterns that are quite distinctive and identifiable.

Same Word

In tests, voice-prints had been made of the same word spoken by different persons, each person uttering it several different times. Each utterance of the word was voice-printed on a separate card. Then the cards were shuffled, and trained subjects were asked to group the cards representing each voice. Out of about 25,000 decisions, these trained people made the right decisions more than 97 per cent of the time.

Now Mr. Kersta hopes to prove that an expert, given enough different word samples from an unidentified speaker, could identify the speaker's voice from millions of others—despite any attempt by the speaker to disguise his voice. Such voice-print identification on a national scale would be done by trained experts, assisted by modern digital computer techniques.

"But many more voice samples must be analyzed before we can be certain this is possible," Mr. Kersta said.

Visible Speech

Voice-prints, sometimes called visible speech, are usually referred to by scientists as voice spectrograms. Oddly the visible prints disclose fundamental patterns that seem to be more distinctive to the eye than to the ear.

Acoustics scientists have long been aware of the wide variation in voices. This wide variation is one of the factors that has thwarted many efforts to build a machine that will understand a large variety of spoken words when uttered by many different voices. Current research is aimed toward taking advantage of this variability by associating unique characteristics with each voice.

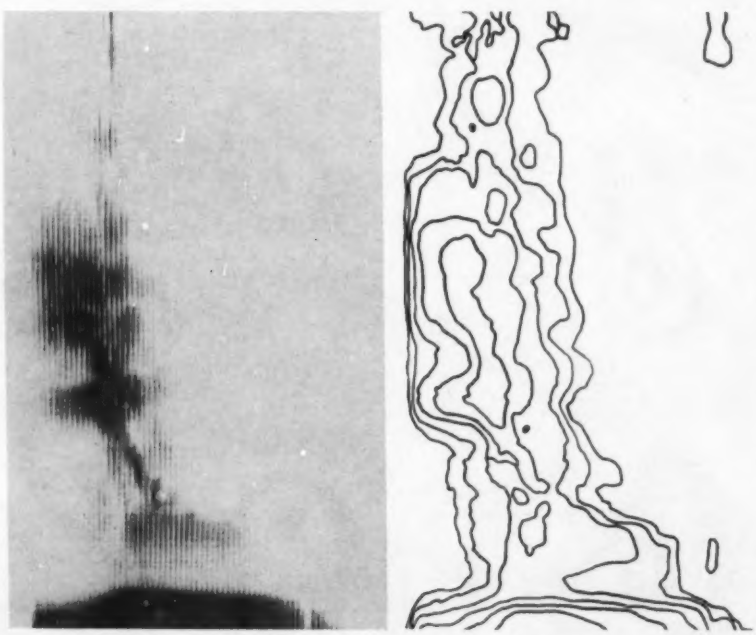
The natural shape and size of a person's mouth, throat, and nasal cavities cause his voice energy to be concentrated into bands of frequencies. The pattern—but not the exact configuration—of these bands remains essentially the same even when a person attempts to disguise his voice by lowering or raising the pitch, speaking in a whisper, muffling the voice, or affecting an accent.

Difficult Operation

Only a small portion of the pattern is modified by loss of teeth, tonsils, adenoids, or by filling the mouth with marbles. And an operation to alter the throat and nasal cavities permanently would be more difficult than surgical removal of the fingerprints.

It is believed that an adult's pattern is substantially unchanged by age. Mr. Kersta expects to illuminate this question by studying samples of speech of broadcasters, entertainers and other voices that have been recorded through the years.

He believes that voice identification will eventually achieve a degree of accuracy somewhere between the present identification by handwriting.



Two forms of the voice-print are the "bar" form, left, and the "contour" form right. Both represent the word "you" spoken by the same person. In each, time is plottteid from left to right. The beginning of the word is at left and the end at right. The lower pitch of sound appears at bottom and the higher pitch toward the top. Greater intensity of sound at each frequency for a particular time is represented by darker lines in the bar form and by peaks in the contour form. People detect patterns more readily in the bar form but computers can more easily analyze the contour form.

New Weed Control To Aid In Telephone Pole Problems

The Bartlett Tree Experts announce the formation of a new chemical plant control division.

According to Robert A. Bartlett, president of the Bartlett Tree Experts, the division's work will include chemical application to such telephone use as control of weeds and woody brush the year around; growth inhibitors and soil sterilization.

"Modern strides in the development of chemicals and their selective application," Mr. Bartlett says, "have created demands far beyond the weed-killer concept of a few years ago.

"Today industries and municipalities, private home owners and preserves are finding it cost-saving and time-saving to use these modern chemicals in the control of plants around storage areas, buildings, driveways, industrial areas, camps as well as wastelands and many other places."

Charles F. Robinson of Yorktown Heights, N.Y., has been appointed manager of the new Bartlett division for the southern New York area.

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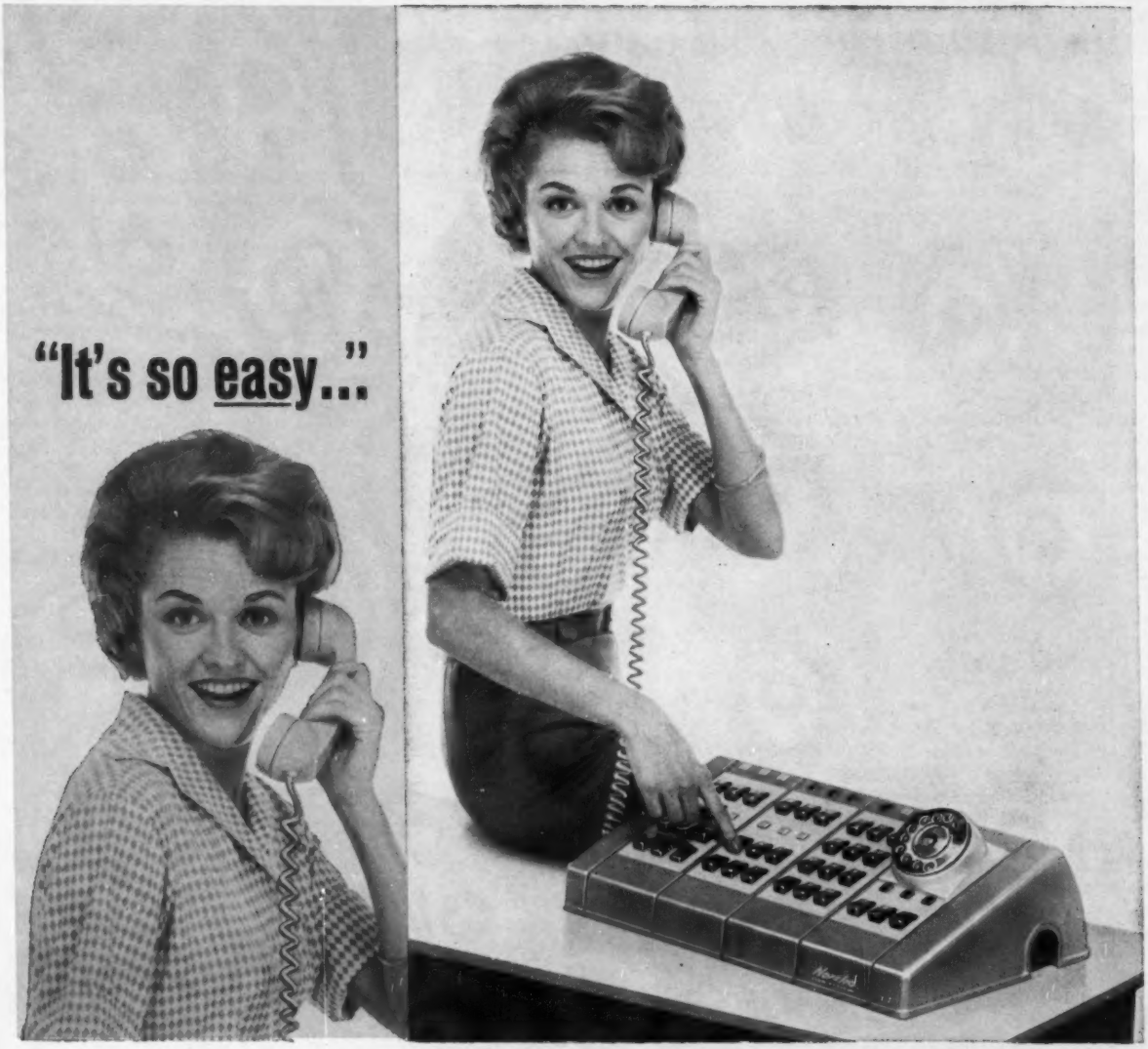

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REA Authorizes 21 Loans Totaling $8,039,000

SINCE THE END of April, 21 telephone loans have been approved by the Rural Electrification Administration, amounting to a total of $8,039,000, as follows:

Seminole Telephone Co., Donalsonville, Ga.; $258,000; Apr. 30.

With the aid of this loan the company will be enabled to finance service for 248 subscribers, install facilities to provide a higher grade of service for existing subscribers, and to complete its authorized system. Facilities necessary to serve the additional subscribers include expanded central office equipment.

Loans to the borrower will help make possible new and improved service to 1,487 subscribers. Seminole's three exchanges now furnish dial service to approximately 1,120 subscribers.

•

Lime Springs Telephone Co., Riceville, Ia.; $556,000; Apr. 30.

The company intends to use these funds to improve service for 840 subscribers and furnish initial service to 167 subscribers. The borrower also proposes to acquire the Wright & Franklin County Telephone Co., Dows, Ia., now providing common battery and magneto service.

A new combined dial and commercial office will be constructed at Dows to serve this exchange only.

REA loans to this borrower will help it make possible new and improved service to 1,841 subscribers in Iowa and one in Minnesota. Two of the proposed four exchanges now furnish dial service to approximately 660 subscribers.

•

Keystone (Ia.) Farmers Cooperative Telephone Co.; $98,000; Apr. 30.

With this loan, Keystone will be helped to improve service for 153 subscribers and to furnish initial service to 32 subscribers.

The cooperative plans to serve the territory formerly served by a number of subscriber-owned lines in and around Elberon. The Farmers Mutual Telephone Co. of Elberon now provides magneto service for these subscribers. The owners of the lines and the company plan to abandon their facilities and become regular subscribers as soon as dial service is available.

REA loans to Keystone will help make possible new and improved service to 936 subscribers. Two of the borrower's proposed three exchanges now furnish dial service to approximately 720 subscribers.

•

Johnson Telephone Co., Remer, Minn.; $155,000; Apr. 30.

Johnson Company plans to use these funds to improve service for 58 subscribers and furnish initial service to 35 subscribers.

The borrower proposes to acquire the following small companies: The Boy River Township Telephone Co.; the Rogers Township Telephone Co.; and the Boy Lake Township Telephone Co. These three companies comprise the Boy River exchange which now furnishes magneto service to 58 subscribers.

A new dial central office will replace the existing magneto switchboard at Boy River. This dial office also will serve the Rogers Township and the Boy Lake Township communities. The borrower is considering service without toll charge among its three exchanges. They are located at Federal Dam, Remer, and the new one at Boy River. A portion of this loan also will be used to complete the authorized system.

REA loans to this borrower will help enable it to bring new and improved service to 632 subscribers. Two of the proposed three exchanges now furnish dial service to approximately 420 subscribers.

•

Thermal Belt Telephone Co., Tryon, N. C.; $753,000; Apr. 30.

With the aid of this loan, the company will be able to finance initial service for 1,340 subscribers in the existing service area. The borrower plans to expand its central office facilities in order to serve the additional subscribers. Facilities also will be installed to provide a higher grade of service.

Loans to this borrower will assist it to bring new and improved service to 4,677 subscribers in North Carolina, and in South Carolina. All of the five exchanges are in operation.

•

Western Telephone Co., Faulkton, S. Dak.; $647,000; Apr. 30.

The company has ear-marked these funds to improve service for 614 subscribers and furnish initial service to 131 subscribers.

A new borrower of REA loan funds, Western Telephone, a commercial corporation, was incorporated in May of 1961. It proposes to acquire with loan and non-loan funds the Western Telephone Exchange, Inc., now furnishing common battery service through its Faulkton exchange, and dial service through its Orient central office. In addition, the Norbeck Telephone Co. and the Millard Telephone Co. plan to abandon their lines and become regular subscribers of the borrower. The acquired facilities now serve 614 subscribers.

Western Telephone proposes to construct a combined headquarters and dial central office at Faulkton. The building will also include garage and storage space. A new and larger dial office will replace the Orient central office equipment. The company is considering service without toll charge between its two exchanges.

Gordon B. Brown is president and Harold Al Brown is manager of the company.

•

Buggs Island Telephone Cooperative, Chase City, Va.; $68,000; Apr. 30.

The cooperative plans to use this loan to:

Provide additional toll facilities in connection with moving the toll center from Blackstone to Richmond;

Install facilities to provide a higher grade of service for existing subscribers; and

Complete the authorized system.

REA loans to this cooperative are helping make possible new and improved service to 512 subscribers. The two exchanges of the system are now furnishing dial service to approximately 430 subscribers.

•

Cimarron Telephone Co., Mannford, Okla., $815,000; May 2.

These funds, together with a prior loan of $623,000 will help enable the company to bring new and improved service to 2,311 subscribers.

Cimarron now furnishes dial service to approximately 500 subscribers through exchanges at Blackburn, Hallett, Jennings, Maramec and Skedee.

Due to the present inundation of a portion of its area, caused by construction of the Keystone Dam and Reservoir by the U. S. Army Corps of Engineers, the company must relocate three of its exchanges. New dial offices are planned on new sites at Osage, New Keystone and New Mannford. The latter building will also house headquarters facilities. In addition, a new dial central office is now under construction at New Prue. At present, about 430 of the subscribers who are in the area to be flooded are receiving dial service.

The system, when complete, will consist of the nine exchanges.

•

Southland Telephone Co., Atmore, Ala.; $369,000; May 4.

With the help of these funds, the company plans to furnish initial service for 144 subscribers in the Atmore and Camden exchanges, install mobile dial radio telephone equipment to serve 20 of the new subscribers and for system maintenance, provide toll center facilities at Atmore to allow for increased system requirements, and to complete the authorized system.

REA loans to Southland will help make possible new and improved service to 4,878 subscribers in Alabama and in Florida. The system will consist of four exchanges.

All exchanges are now providing dial service.

•

Rural Telephone Co., Inc., Elaine, Ark.; $451,000; May 4.

The company plans to use this loan to improve service for 368 subscribers and furnish initial service to 404 subscribers. The new borrower of REA loan funds now furnishes dial service to the existing subscribers, and proposes to extend its service area into unserved territory in order to serve the additional subscribers.

The Rural Company also plans to remodel and expand its commercial-dial office building in Elaine for central office use only, and to construct a new headquarters building also in Elaine. A portion of the loan funds will also be used to refinance the borrower's existing indebtedness.

Austin A. Goodman is both president and manager of the Rural Telephone Co.

•

Four States Telephone Co., Brownwood, Tex.; $1,385,000; May 4.

With the aid of this loan, the company plans to furnish initial service for 1,168 subscribers and to improve service for 770 subscribers in Texas, and in Oklahoma.

Four States proposes to acquire through issuance of its own common stock the following telephone properties from the Southwestern States Telephone Co.: The Hasting dial exchange and the Temple manual exchange, both in Oklahoma; and the Dime Box dial exchange and rural lines, located in Texas. The acquired facilities now serve the 770 subscribers.

The company plans to replace the Temple switchboard with a new dial central office, expand the dial facilities, and retain the Hasting and Dime Box exchanges in the enlarged system. It

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AND, we don't mind telling you: Lynch's well known knack with filter systems, designed into the B910, relieves you of the cost of intermediate supergroup modems and other common equipment, avoids expensive hybrids, provides options for easy drop and reinsert configurations and, of course, sounds best (you can actually recognize the fellow on the other end). The Lynch B910 can't overload the microwave system, because it utilizes single-sideband, suppressed carrier transmission. Among the L-E-T-T-E-R-S the B910 works with are CCITT, the indomitable W. E. "L" (we have two orders from them, incidentally) and some others, if you'd care to guess (we have lots of options).

AND if that's not enough, the B910 has been producing toll revenue for over a year . . . longer than any other similar transistorized system in the country. You may have heard that it is operating over a 1400 mile pipeline system; and that it is providing communications between some islands in the South Pacific via a scatter radio system.

IF you're in the communications business and not currently using two tin cans and a string, we suggest that the Lynch B910 can do the best possible job of solving your particular problem at the lowest cost. It won't hurt you a bit to start on a budget and grow as the Joneses move into the neighborhood and order new service. If Mr. Jones happens to work for W. E. or one of those other big outfits, you might give him our number. What Lynch can do for you, it can do for the Joneses, too.

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also proposes to purchase sites and to construct new dial central offices at Deanville, Northrup and Tunis, all in Texas. A small business office will be constructed at Temple to serve the two new Oklahoma exchanges.

REA loans to the Four States company will help make possible new and improved service to 7,667 subscribers in Texas, Arkansas, Louisiana and Oklahoma. The system will consist of 25 exchanges, of which 12 are now furnishing dial service to approximately 2,280 subscribers.

•

New Elberfeld Telephone Co., Inc., Elberfeld, Ind.; $246,000; May 7.

New Elberfeld intends to use these funds to improve service for 346 subscribers and furnish initial service to 326 new subscribers. There will also be some service in fringe areas.

This new borrower of REA loan funds, a commercial corporation, was recently incorporated and at present does not own or operate any properties. Magneto service is being provided through the Elberfeld central office to the 346 subscribers in the borrower's service area by a partnership consisting of James Harris and William Davidson. These telephone properties will be transferred to the borrower at no cost as soon as the necessary authorizations are obtained from the Indiana Public Service Commission.

The Company then plans to replace the Elberfeld magneto facilities with a new combined headquarters and dial central office.

James Harris is president and William Davidson is manager of the New Elberfeld Telephone Co.

•

Surry Telephone Membership Corp., Dobson, N. C., $107,000; May 7.

The borrower plans to use these funds to arrange service without toll charge among its Beulah, Level Cross and Westfield exchanges. It also plans similar service between each of these exchanges and the towns of Dobson, Pilot Mountain and Mt. Airy.

Loans to the Surry cooperative will help enable it to bring new and improved service to 2,315 subscribers. The four exchanges of the system provide dial service to approximately 1,800 subscribers.

•

Four States Telephone Co., Brownwood, Tex.; $1,027,000; May 7.

With the help of this loan the company seeks to furnish initial service for 1,338 subscribers and to improve service for 502 subscribers Arkansas. There will be some service in a fringe area also in Arkansas.

The Four States company proposes to issue its own common stock to acquire 239 miles of rural line. These lines are presently owned and operated by the Southwestern States Telephone Co., which provides dial service to the subscribers through three of its own central offices. Only the rural lines are included in this acquisition.

The borrower will construct new dial central offices at Blooming Grove, Carryville, Knobel-McDoughal, Leonard, Pollard and Success, all in Arkansas.

Loan to Four States will help enable it to bring new and improved service to 9,507 subscribers in Texas, Arkansas, Louisiana and Oklahoma. The system will consist of 31 exchanges, of which 12 now provide dial service to approximately 2,280 subscribers.

•

Central Utah Telephone, Inc., Fairview; $222,000; May 7.

The company intends to use this loan to improve service for 297 subscribers and furnish initial service to 120 subscribers. A new borrower of REA loan funds and a commercial corporation, it now serves the existing subscribers through a dial office at

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Fairview.

A new and larger dial office is planned to replace the Fairview building, and new dial office will be constructed in Thistle. This borrower will own the toll carrier terminal equipment in each of its central offices, and a portion of the loan will be used to refinance the borrower's existing indebtedness.

Ivan R. Cox is both president and manager of the Central Utah Telephone, Inc.

•

Rock River Telephone Co., Johnson Creek, Wis.; $30,000; May 7.

The Rock River company intends to use this loan to complete the authorized system.

REA loans to the borrower will help make possible new and improved service to 704 subscribers. The system will consist of the Johnson Creek exchange which is now furnishing dial service to approximately 625 subscribers. The borrower is planning service without toll charge between its exchange and the towns of Watertown and Jefferson.

•

Traverse Bays Telephone Co., Central Lake, Mich.; $125,000; May 9.

The company plans to provide service for 466 new subscribers. Facilities required to provide the additional service include expanded central office equipment.

Loans to this borrower are helping enable it to bring new and improved service to 2,262 subscribers. The borrower's eight exchanges are in operation, serving approximately 1,790 subscribers.

•

Mark Twain Rural Telephone Co., Bethel, Mo.; $183,000; May 9.

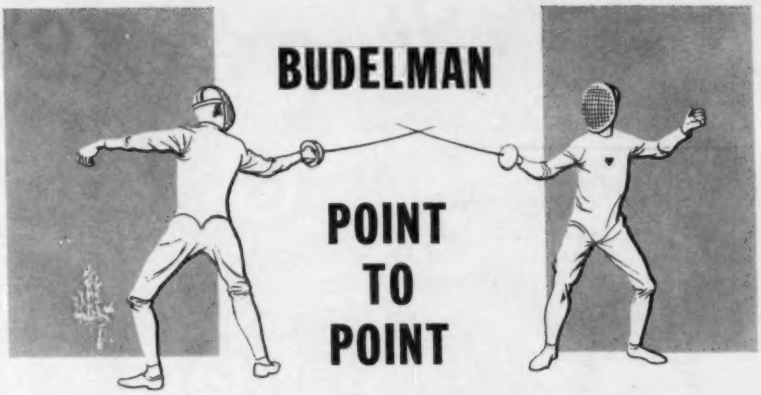
This company has allocated these funds to improve service for 216 subscribers and to furnish initial service for 91 subscribers. The borrower proposes to acquire access rights to the areas served by the Independent Telephone Co., Williamstown, and the Neeper Telephone Co. These two subscriber-owned lines now provide magneto service to the subscribers.

A new dial central office is planned to replace the Williamstown central office which will serve both communities.

REA loans to the Mark Twain company will assist it to make possible new and improved service to 2,777 subscribers. The system will consist of 11 exchanges, of which 10 now furnish dial service to approximately 2,315 subscribers.

•

Sunnyside Telephone Co., Clacka-



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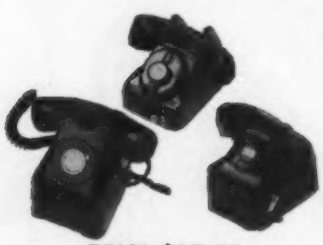

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mas, Ore.; $350,000; May 11.

With the assistance of these funds, the company plans to provide improved service to 671 subscribers and furnish initial service to 194 subscribers.

The borrower has recently acquired the Dayton Telephone Co. through issuance of its own stock to the Dayton company stockholders. The system serves both the Dayton and the Grand Island communities and is adjacent to the borrower's present Lafayette exchange. It provides common battery and magneto service to the subscribers.

The Sunnyside company plans to make two exchanges out of the Dayton-Grand Island-Lafayette areas. A new combined dial-commercial office will be constructed in Dayton, and a new dial office will be built at Grand Island to serve the expanded portion of the system.

Loans to this borrower will assist it to make possible new and improved service to 2,644 subscribers. The system will consist of four exchanges of which two now provide dial service to approximately 1,275 subscribers.

•

Topsham Telephone Co., South Barre, Vt.; $46,000; May 11.

These and funds from a prior REA loan will help enable the borrower to serve 79 new subscribers and to install additional toll facilities. In order to serve the new subscribers, the borrower plans to expand the central office equipment at East Corinth.

The two REA loans to this borrower will help the company make possible new and improved service to 427 subscribers. The system's one exchange at East Corinth now provides dial service to approximately 320 subscribers.

•

Union Telephone Co., Mountain View, Wyo.; $148,000; May 11.

This loan is designed to enable Union to furnish initial service for 61 subscribers in the service area, install facilities which will provide a higher grade of service for existing subscribers, install additional toll equipment, and enlarge the Mountain View headquarters building.

Loans to this company will help make possible new and improved service to 905 subscribers in Wyoming; and in Utah. The three exchanges of the system now provide dial service to approximately 725 subscribers.

Boss's Burden

"If there were more self-starters, the boss wouldn't have to be a crank." —S. E. MEKEEL, Ovid (N. Y.) *Gazette and Independent.*

ASSIGNMENT SLIPS

Concluded from page 34

codes and may be identified when these calls are segregated on special answering jacks.

(6) Repairman and installer leads will show when additional customer instruction seems desirable.

Purpose of Load Guide

Records normally kept for dial office loading and service purposes are numerous but do not readily lend themselves to obtaining a quick and complete picture of current loading and service conditions. The purpose of a load guide is to estimate a loading policy for line assignment determinations. The guide should be a control record that brings about proper distribution of lines over various frames to insure an even load balance. The guide will give you a quick picture of what is happening and what could happen if extreme care is not used when the dictates of good dial assignments are not followed.

I hope I leave you with the thought that dial administration is really an important assignment. In the estimation of most traffic engineers, it stands high in the category of "Musts" if a dial office is to run smoothly and efficiently and at a reasonable cost from a monetary viewpoint as well as from a public relations standpoint.

TRAFFIC PAGE

Concluded from page 28

A. Say "(calling place) area code (code for calling place), customer on line (or 'ringing')."

(4) Q. If an overseas operator has requested you to collect a deposit and there is a shortage, how should you proceed?

A. Advise the overseas operator of the amount of the shortage. Understand that the name and address of the calling customer is secured by the overseas operator when the call is recorded so it is unnecessary for you to attempt to obtain this information.

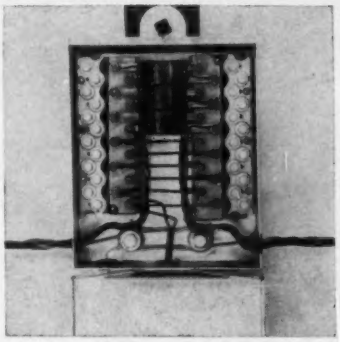
(5) Q. How would an over collection on an overseas call be handled by the outward operator?

A. Secure the name and address of the calling party and the called details from the overseas operator and prepare a memo ticket. Enter "refund (amount) to (clg. pty.) (address)" in the "Spec. Inst." space and refer the ticket to the Service Assistant or Chief Operator.

The answer to the acumen test is: A New Word. Did you get it?

CEECO TYPE C177

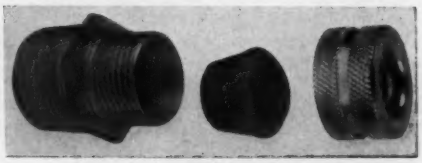
TERMINAL LOADING CASE (PROTECTED OR NON PROTECTED)



for 6, 11, 12, 16, 18 and 26 pair Rural Distribution wire or plastic cable.

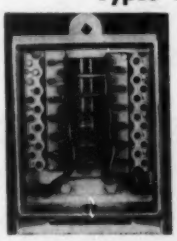
Cast aluminum combination box for loading coils, capacitors and inductors. Designed to be used for rural distribution wire and plastic cable for 6, 11, 12, 16, 18 and 26 pair capacity and available in 7 types to meet your requirements. Terminals are designed to accommodate Type C637 cases for coils, capacitors or inductors.

TYPE C637 CASE



Compression Coupling required for plastic cable

Types 177A-177B

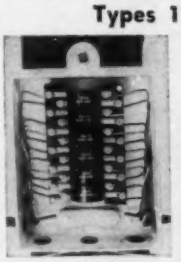


Two protected strips complete with C637 cases containing coils, capacitors or inductors

Type 177F

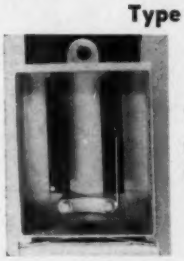
One protected strip — without C637 cases

Types 177C-177D



Two non protected strips complete with C637 cases containing coils, capacitors, or inductors

Type 177G



Two non protected strips — without C637 cases

Types 177E

Two protected strips without C637 cases

Type 177H

One non protected strip—without C637 case

Sold by all Telephone Equipment Suppliers
Write us for assistance on your loading and transmission problems.

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5646 West Race Avenue • Chicago 44, Illinois
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HOOSIER CONVENTION

Concluded from page 46

surveys, "it has been determined that the American public has complete confidence in the telephone industry's ability to provide communications, second to none."

Warns of Complacency

But, he warned of complacency and said: *"We do have competition*! Listen to this. Out of 16 actual contacts made by a non-telephone private communications company, 15 of the actual contacts resulted in sales. What's more, in each of these 15 sales, the number of telephones extensions was reduced; in nine of the 15 sales, a reduction of telephone trunks resulted; and, in six instances, the sales resulted in the telephone company having to remove their board completely from the premises. This is only an indication of what might be expected to come if we don't concern ourselves with preparing now to be in a position to adequately cope with our competition.

"I only bring these up at this time to plead with you to admit you are in the communication business and not necessarily only the telephone business, before our competitors make it costly for us to eventually make this adjustment."

Selling, he continued, is nothing more or less than helping the other person to arrive at a sound buying decision. "This is done simply by conveying to the customer that you have something he wants, what it will do for him, and not what it will do for the telephone company. Your customer wants benefits! He wants the benefits to far outweigh the cost to him—don't you?"

Mr. Schumacher delineated sales problems and techniques and closed by saying: "If you get to the point where you have convinced yourself that your company has done a good job in selling telephones, the basic service which we have to offer, do not become complacent. Instead, please read and reread these statistics—more American homes have television sets than have telephones. Also, two-car families are rapidly gaining to the extent where they, too, possibly have exceeded the number of families having two telephones."

Directors and Officers

The Indiana Association reelected to the board: R. V. Achatz of Aurora, C. D. Ehinger of Decatur, L. H. Meyer of Ft. Wayne, W. J. Scheidler of Greensburg, and LaMar S. Stoops of Nappanee.

The Indiana Association's Merit Award for 1962 being presented to John A. Ryan (left) installer-repairman of Indiana Bell Telephone Co. by L. H. Meyer, president of the Association. Mr. Ryan rescued a woman from her burning home.

Other members of the board are: H. A. Barnhart of Rochester, R. C. Echols of Indianapolis, J. A. Harbaugh of Sullivan, R. R. Hirschman of Indianapolis, W. A. McCullour of Ft. Wayne, E. C. Mull of Knightstown, Francis Simpson of Winchester, George A. Steele of Warsaw, Don Van Fleit of Garrett, and Virl Watkins of Princeton.

Honorary directors are: F. E. Bohn of Ft. Wayne; H. S. Hanna of Chathamport, Mass.; R. D. Pontius of Rochester, and S. K. Trippet of Princeton.

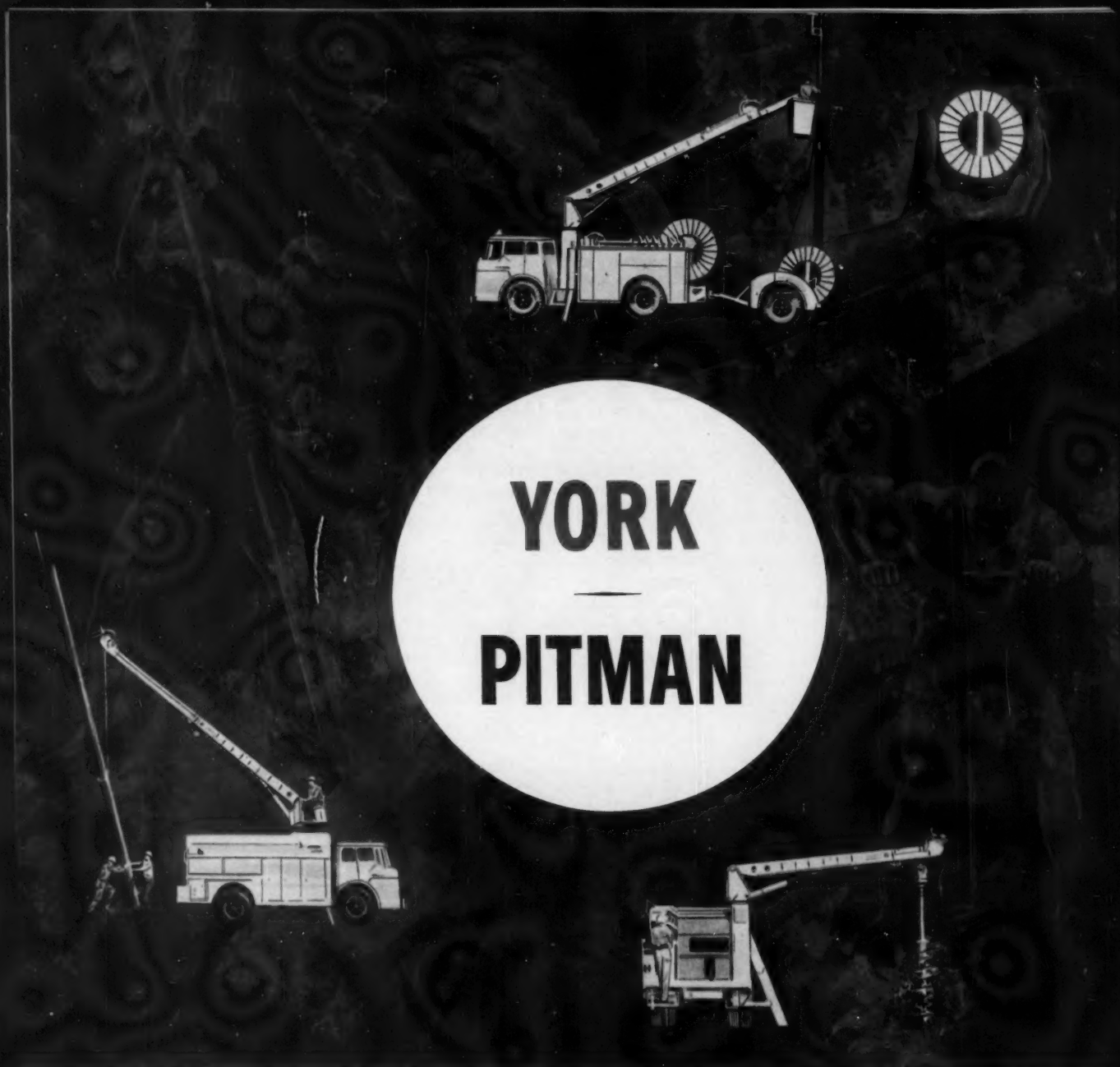
Directors elected the following officers: President, Mr. Steele; first vice president, Mr. Mull; second vice president, Mr. Stoops, and secretary-treasurer, George A. Schumacher.

L. M. Berry Company Holds Office Managers' Conference

Office management people from the 14 divisions of L. M. Berry and Co., telephone directory advertising firm, met in Dayton, O., recently for a three-day Office Managers' Conference.

Twenty-two conferees were on hand for talks covering all phases of the office management job. Highlights included discussions of the department's new quality and production control program, and its automation program, now passed from the "introductory" into the "perfection of the system" stage. Procedures and methods manager for L. M. Berry and Co., J. J. Mullin, directed the conference pro-

Twenty-two conferees, representing all 14 divisions of L. M. Berry and Co. participated in an Office Manager's Conference held in Dayton, O., recently. Seated (from left) are: E. T. Courtney, Milwaukee; J. E. Pledger, Louisiana; T. E. Murphy, New York; W. O. Flemming, mideastern office; E. H. Schmidt, Wisconsin; D. Moore, western office. Second row: J. J. Mullin, procedures and methods manager; R. M. Quinn, New York; H. Fletcher, Wisconsin; B. R. Saddler, mid-eastern office; Dorothy Dallas, Ohio division production manager; G. Lofton, Florida; M. H. Cain, Mississippi; R. E. Stoltz, southern territory; W. E. Freet, Pennsylvania. Back row: D. G. Garner, Alabama; M. Preston, Ohio division; R. E. Coplen, mid-western office; W. C. Conwell, Tennessee; G. P. Woodward, Kentucky; H. R. Hommel, western division; and J. W. Schmidt, procedures and methods supervisor.



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...to serve you better

Today, as part of its continuing battle against cost-per-man-hours, there is an increasing need for new, more efficient equipment in the telephone industry . . . equipment that will permit greater job mechanization of construction and service work. We recognize this need. To meet this demand the York Body Company has joined forces with the Pitman Manufacturing Company. This move brings together two firms with extensive service to the communications industry. Both have experience in depth in the design and manufacture of equipment made especially for all telephone companies. A program of research into the needs of the telephone industry has already been launched by our newly merged engineering department. From this consolidated effort we hope to develop more closely integrated equipment . . . equipment that will simplify work procedures, reduce operating costs and provide even greater safety.

YORK BODY *A DIVISION OF* **PITMAN MFG. CO**

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ceedings, assisted by procedures and methods supervisor, J. W. Schmidt.

Guests and speakers included John W. Berry, managing director, J. William Craig Jr., general sales manager, J. C. Rudwall, G. W. Chamberlain, Phil Engle, J. F. Deddens, C. D. Smith, L. J. Wyeth, H. C. Hull, and W. R. Calhoon.

Homespun Philosophy

Two items from "grassroots" newspapers bear cogent pointers for business people:

"If the grass looks greener on the other side of the fence, maybe you need to water better the spot where you now stand."—Palmetto, Fla., "Suncoast News".

•

"The fellow who falls down usually gets up quicker than the one who sits down!"—Watkinsville, Ga., "Oconee Enterprise".

A Definition

As you read history and biography, I think you will not come to equate greatness with compromise. Rather, you will find it in decisiveness combined with charity, gentleness and justice.—WILLIAM G. SALTONSTALL.

IN THE NATION'S CAPITAL

Continued from page 20

cuts off aid to any nation which seizes property owned by United States citizens when the country involved does not take "adequate and proper" steps toward fair compensation.

The bill does not, however, specify which agencies of the U. S. Government would enter into such arbitration.

The House Foreign Affairs Committee is continuing work on a similar foreign aid bill, and it is understood that Representative Adair (R., Ind.) will press for the inclusion of an anti-expropriation provision.

FCC Studying Western Union Service

The federal government may step into the picture to try to solve the dilemma of the Western Union Telegraph Co.'s dwindling public telegraph service.

The FCC has announced a broad investigation into recent declines in Western Union's business. An important part of the probe is to determine "whether government assistance or intervention is necessary or appropriate."

Other areas of inquiry include: Whether "something less" than the nation-wide telegraph service currently provided by Western Union "would be in the public interest."

The extent of competition between Western Union and American Telephone & Telegraph Co. and Western Union's "ability to meet it." Increased use of private telegraph has cut sharply into Western Union's revenues in recent years, as has the growing use of long distance telephone and air mail.

Whether to make the telephone companies themselves provide public telegraph services. This could mean in effect that the FCC harbors hopes of fostering an integration of some of Western Union's service into the AT&T system.

"It seems clear," the commission said, "that a continuation of the decline in message volume and the consequent closing of public telegraph offices raises a serious question as to the continued availability to the public of a nation-wide domestic telegraph service."

Since 1945, the FCC noted, "the volume of telegraphic messages handled by Western Union has declined 47 per cent to 131 million a year, and the number of its public telegraph offices has decreased about 37 per cent to 18,849." Western Union's current earnings on the domestic system, the commission said, total some 10 million dollars annually, "about 4 per cent of the company's net investment" in the system.

The commission said it would set hearings later and was making Western Union and AT&T parties to the proceedings.

Besides looking at "national defense aspects" of declining telegraph service and making a broad review of telegraph prospects, the FCC said it would also study the company's "patents and the degree to which it takes advantage of technical improvements or may be barred from doing so by patents held by others."

How well Western Union delivers messages will also get close inspection. The FCC said it will look at the company's efficiency, "speed and reliability," its "financial position and ability to continue operating on a sound basis, (as well as) steps which should be taken to improve its financial position."

Major General Cook Named New Signal Corps Chief

Major General Earl F. Cook has been named chief signal officer of the U. S. Army it was announced in May. He is replacing General Nelson who has held that post since May 1959.

General Cook was born in New York State and was graduated from the U. S. Military Academy June 1931. He has been assigned to the Army Signal Corps since 1935, serving in various capacities here and in Europe.

At White Sands Proving Ground, New Mexico, from July 1952 to January 1954, he was commanding Officer of the White Sands Signal Corps Agency where he began an early association with missile electronics work.

He held the position of Commanding Officer at the U. S. Army Signal Research and Development Laboratory, Fort Monmouth, N. J., from 1955 to 1958. It was during this period that the first solar conversion for satellites, used with VANGUARD I, and the Cloud Cover satellite were developed. As head of the Research and Development Division he directed Signal efforts in Project SCORE, the "talking satellite" developed by the Army Signal Corps for the Advanced Research Projects Agency of the Department of Defense.

MAJOR GENERAL COOK

He has been awarded the Legion of Merit, the Commendation Ribbon with Medal Pendant, and a number of other decorations and citations.

A Toll Position costs you approximately $1,250 per year! Operator wages to man that position can run to another $8,750 annually!

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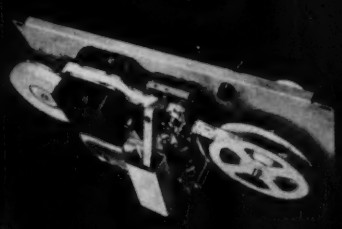
enables each existing operator to handle ⅓ more toll calls. Present traffic can be handled at a proportionately lower cost or you can meet the demands of increased traffic without enlarging your operator force.



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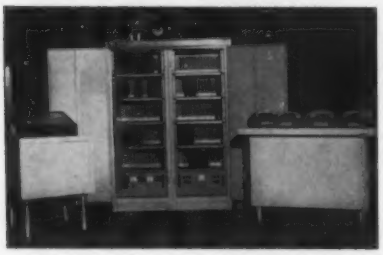
POWER EQUIPMENT — *Custom Power Systems • Battery Chargers*

News on New Products

ELECTRONIC SWITCHING—A new electronic switching system for voice frequency transmission has been introduced by the Communications Systems Department of ITT Kellogg, a division of International Telephone & Telegraph Corp.

The new system—called the K 1502 Private Automatic Branch Exchange—is 50 times faster than current electromechanical switching systems, the company states. The completely transistorized system—one of a series of communications switching systems de-



signed for a variety of military and other government applications—can be used to provide fast, efficient communications on either small or large scale switching networks.

The unit will operate in many military environments, and will switch or re-route many types of information. In addition, the equipment establishes connection in response to dial pulses received from any party tied into the system.

Of modular design, the K 1502 is expandable, accommodating from four to 200 lines by the insertion of additional plug-in modules. All the switching and power equipment necessary for a 200-line, 30 trunk PABX is located in the basic cabinet, the company states.

The module sub-racks are located on a standard 19 inch rack for flexibility of installation. The plug-in modules each contain a printed circuit board and connector. All modules are the same size and like boards can be interchanged.

According to ITT Kellogg engineers, the new switching system employs a random selection principle whereby a desired connection is made with great speed. The action can be likened to water seeking an outlet from a strainer and flowing instantly through the first available hole. This effect was achieved through development by ITT Kellogg engineers of what is technically called an end-marking, self-seeking switching network using four-layer diodes and requiring no control circuitry.

The K 1502 also features a cordless attendant's console. From this one position an operator can answer any request for service. Trunk supervision is accomplished by the operator through the use of four color-coded lamps located on the console. Various colors provide seven modes of operation with either flashing or steady state signals.

This color-coding scheme provides the operator with clearly defined supervisory functions. The attendant can complete any call from the city trunk to any PABX extension, can connect any PABX extension to the central office and provide information or assistance. Each trunk is represented on

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
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Please have the manufacturer send me without obligation the literature indicated by the following numbers:

NP1903 ____ ; **NP1904** ____ ; **NP1905** ____ ; **NP1906** ____ ;
NP1907 ____ ; **NP1908** ____ ; **NP1909** ____ ; **NP1910** ____
NP1911 ____ ; **NP1912** ____ ; **NP1913** ____ ; **NP1914** ____ ;
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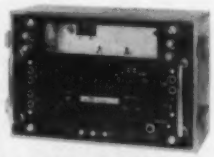
electronic products for the telephone industry...



Portable Test Hybrid
Simplifies cable acceptance tests and return loss measurements.

Far End Terminating Set
Provides precision network termination during cable testing.

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Furnishes a convenient method of measuring dial speed and percent make.

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A simple, easy-to-understand, easy-to-operate training device which simulates all transmission problems.

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BUILD OUT AND
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REDUCE MAINTENANCE MAN HOURS UP TO 60%

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TESTED, APPROVED, AND IN USE BY MAJOR TELEPHONE COMPANIES...

Direct Distance Dialing and data handling has increased the requirement for improved transmission capability. Continuous tests are necessary to eliminate circuit faults or failures.

The AIC - 20B has been designed specifically to accomplish this job. The standard and proved testing techniques, using singing point and return loss measurements are made easily and quickly with a minimum requirement for technical skill. Office balance and wiring capacitance measurements can be made directly. Use of this instrument will assure reliability of test results and can reduce maintenance man hours up to 60%.

Every telephone company should have this inexpensive piece of test equipment.

FOR FURTHER INFORMATION CONTACT:

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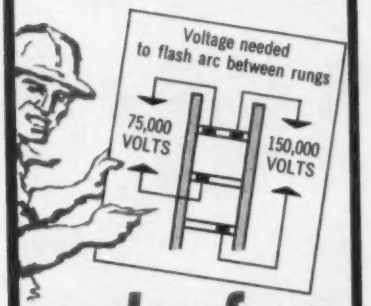


and safe

Non-conducting, non-absorbent, yet strong and light as an aluminum ladder! Power company tests indicate Alco-Lite Fiberglass Ladders extremely safe around high voltages. Resist chemicals, acids, gases, fumes, and moisture.

Alco-Lite Fiberglass Ladders meet ASA Code A14.2 for portable *metal* ladders. The wider side rails are SOLID fiberglass—not plastic covered soft wood. The wide steps and rungs are high tensile strength aluminum. More riveting and bracing throughout!

Ladders safe, strong, more rigid, have longer life, because of exclusive design and construction. Maintenance negligible. *SEND FOR CATALOG!*

Original Manufacturer of ALUMINUM Ladders

Aluminum Ladder Co.

West Darlington Street Ext.

FLORENCE 8 S. CAROLINA

the console by the four-color lamps to expedite her duties.

Other features listed by ITT Kellogg are:

Operator Recall: The PABX attendant can be brought back into the circuit from an extension by dialing the digit "1" after any outside call has been established.

Restricted Service: Only designated lines can obtain direct service to the central office by dialing the digit "9".

Call Transfer: Outside calls can be transferred from one extension to another without the assistance of the attendant.

Night Operation: When the attendant is not present, incoming outside calls are directly routed to pre-selected lines or signal devices, as desired.

Executive Right-Of-Way (Priority): If the extension which the calling party desires is busy, the priority feature allows the calling party to preempt the call in progress, automatically connecting his line to the busy extension. Designated lines can be provided with the priority feature.

Camp-On Busy Service: Allows an incoming trunk to continuously hunt a busy extension. When the extension is available, the incoming call is automatically completed. The attendant is thus freed to furnish information and connect other incoming calls.

Number Group Panel: Allows extension numbers to be assigned or changed without re-wiring. The placement of three resistor pins in the number group panel assigns the number to an extension.

Conference Service: Two five-party conference circuits are available. The conference originator dials the desired extensions in a progressive fashion. If more than five parties are desired in the conference, the second five-party conference circuit is automatically allotted so that 10 parties can be in the same conference. An outside call can be one of the parties in the conference.

Code Call or Public Address Service: Allows automatic paging using either visual or audible signals or both. The public address service is similar in many respects to code call except that it provides for voice paging rather than a system of visual or audible signals. Either service allows both the attendant and the PABX extension to automatically summon anyone to answer a call at the nearest telephone.

Dictation Service: Any PABX extension may gain access to a centralized dictation system by dialing a single preassigned digit. The circuit is designed so that it will operate in conjunction with standard dictation machines.

Tie Lines: Dial-to-dial or dial-to-manual tie-lines can be provided when the frequency of calls requires that two or more PABX or PBX offices be connected together. Request NP1903.

•

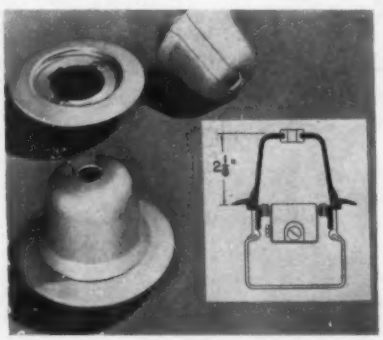
BROADBAND RADIO-RELAY SYSTEM—To coordinate with the 2700-channel, 12 mc coaxial transmission system specified in CCITT (International communications consultants for telephony and telegraphy) Recommendation G 343, Marelli-Lenkurt of Sesto San Giovanni, Italy, has developed and field-tested a broadband radio-relay system designed to carry 2700 telephone channels in each radio-frequency channel. A recent field trial over a 51 kilometer path in the Po Valley of northern Italy indicated that the system will meet the requirements of CCIR recommendations with respect to channel noise, and that there is no practical limitation to the use of its entire capacity because of multi-path propagation.

Marelli-Lenkurt is an associate of General Telephone & Electronics International. Request NP1904.

•

FLUSH SERVICE FITTING—A flush service fitting for use with underfloor electrical raceway systems has been introduced by Wheatland Electric Products Co., Carnegie, Pa.

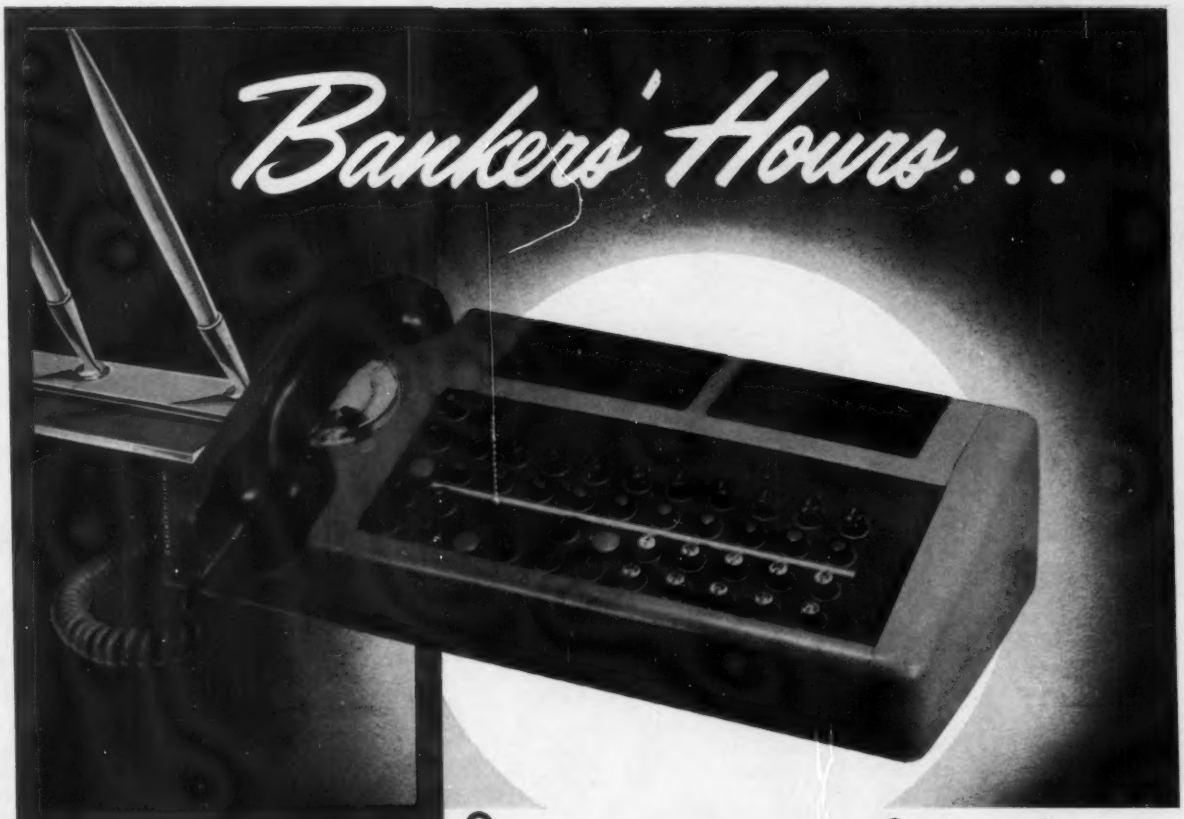
The unique service fitting bell cap is designed with removable tongue segment which allows cable and plug to be attached to receptacle or device



before bell cap is installed and without first removing the male attachment plug and re-wiring. A split rubber grommet protects cords and cables at the bell cap opening.

WEPCO's flush service fittings are marketed with standard T-slot receptacle or NEMA grounded receptable for power circuits. Fittings for use on signal or telephone circuits are supplied without wiring device. The bell cap accommodates all standard and most special attachment plugs.

The floor level service fitting is die-



OR 24 HOUR DUTY?

Bankers know their values and the Type 30 is packed with values! With no increase in payroll, twenty-four hour service is automatic with the USI Type 30 PABX System.

This is your market place for Call Transfer, Call Storage, Night Service and a host of additional features. All this on a 24-hour basis. And USI's famous "minimum-maintenance" design will assure enduring customer satisfaction.

Contact us for informative literature or a personal visit on the part of our Sales Engineering personnel.

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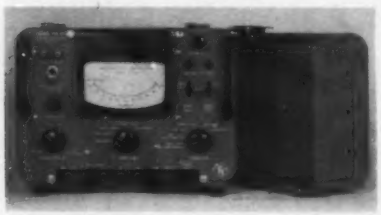
cast aluminum with aluminum epoxy resin finish. When installed, the bell cap threads securely into the service fitting flanged housing and stands 2-⅛ inches from floor surface to top. The one-piece flanged housing has a threaded base for positive screw-threading into any standard 2-inch diameter underfloor duct outlet. Request NP1905.

•

TEST SET—The Northeast Electronics Corp., Concord, N. H., has annouced a test set to assist in the solution of dial pulsing problems.

The Model TTS 26A is a pulse



signaling test set designed to either send pulses generated by a built-in oscillator or pulses obtained from an external dial; the percentage break of the transmitted pulses can be varied over a wide range and can readily be measured, the company says. In addition, the set is said to measure the percentage break of pulses received in the circuits to which the set is connected. Signals can be received or transmitted on a Loop or E-M basis.

The instrument can be operated from a power source of 48 volts dc or an external 45-volt dry battery. It can be used in a vertical or horizontal position. A detachable cover includes storage space for cords, small tools, and other items.

The Model TTS 26A consists of an internal pulse generating circuit, provisions for sending signals obtained from an external dial, and a measuring circuit designed to measure the percentage break of the send pulses generated by the instrument or the receive pulses on the circuit under test. Controls are provided for switching different functions and modes of operation and to calibrate the instrument to eliminate the effects of battery voltage variations. Request NP-1906.

•

DOUBLE JACKETED CABLE—BUPIC, a double jacketed multipair distribution cable, is available from Alphaduct Wire & Cable Co., a division of General Cable Corp. It is available in sizes 3, 6 and 12 pairs in gauge sizes of 19 Awg or 22 Awg. Each conductor is insulated with tough linear polyethylene and pairs are assembled with varying lay lengths to minimize

crosstalk. The core is covered with a polyethylene inner jacket over which is applied a rugged steel strip serve, corrosion resistant flooding compound and an outer polyethylene jacket.

The more important features of BUPIC are—complete color code to speed splicing and high available tensile strength to better resist plowing operations particularly on small pair cables. The company says the strength of BUPIC is approximately nine times the breaking strength of conventional constructions of double sheathed cable. Request NP1907.

•

MOBILE PAYSTATION TRAILER—Phillips & Brooks, Inc. has announced a mobile coin telephone trailer which contains four lighted wall booths on each side and is said to be exceptionally light in weight, though quite durable.

It is said to be completely weatherproof for outside use but small enough to be used inside—such as at conventions. One man can easily put the unit into service, the company says.

Other features include retractable masts, chrome leveling jacks, turn and stop signal tail lights, retractable pulling bar, and choice of colors. Request NP1908.

•

HYDRAULIC DERRICK—A "Pole-Master" Hydraulic Derrick with a Roto-Matic Turret has been added to the Powers-American line of utility bodies

and equipment manufactured by McCabe-Powers Body Co. The new unit, known as the Series PM-50-70 "Pole-Master" is reported to have massive power for lifting, rotating and digging anywhere around the truck on hills or on the level.

The turret with a revolving opera-

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and have 167% more beam candle power at the same time plus longer bulb life
The efficiency of LIGHT-STICK'S 6-volt circuit does it. Four standard batteries working together give 150% more burning time than the standard 2-cell light.
With rust-proofed 24-gauge steel case, unbreakable lucite lens, protective rubber collar and heavy 2-conductor cord, LIGHT-STICK lasts years longer.
LIGHT-STICK with swivel head meets every lighting problem...stands up firmly or lays flat on side without rolling. It has a belt clip, carrying ring and hanging slot. Though it costs a little more, LIGHT-STICK pays for itself in savings, service and satisfaction.
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tor's seat and control panel is installed as a top mount anywhere on the truck body, as a center mount behind the cab or as a corner mount on either rear corner of the vehicle for operation to both sides and behind the truck.

It is one main casting machined to take all components of the gear drive and motor. Bearing points receiving the most punishment are reinforced with high strength steel to protect the precise operation of the heavy-duty gears, shafts and cylinders, the company says.

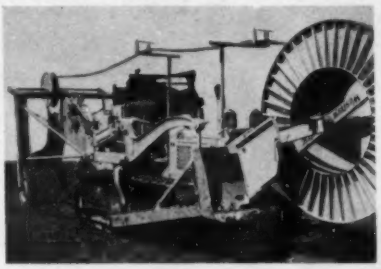
Pilot operated check valves to lock outriggers in working position are integral with the cylinder. This exclusive feature is reported to eliminate the need for additional piping and fittings.

Standard Series PM-50-70 features include: maximum sheave height of 32'6" and horizontal length of 22'6"; vertical travel from 80° above to more than 20° below horizontal; 360° rotation and digging range from 15' to 22'6"; hoists 9000 lbs. and exerts 3000 lbs. down pressure.

Optional equipment includes: a hydraulic hole digger; an insulated Spirex extension beam with provision for one or two work baskets; manual or hydraulic Pole Grips for plumbing poles; and a hydraulic locking pin actuated from control panel to automatically secure digger. Request NP1909.

•

CABLE REEL ARMS—Michaels' Steel Fabricators & Welding Co. has introduced cable reel arms which can be attached to most tractors. According to the company, the arms do not slip



while carrying a reel or cable. The arms are said to be adjustable to all sizes of reel and to bulldozer blades.

The company says the adjustable, frictionless roller guides are used to guide the cable over the tractor to the plow. The company says the cable can be installed or removed by just opening the top gate over the tractor. Request NP1910.

REPLACEMENT SWITCH PLUG—Plugging a "Buttinsky" handtest telephone into a switch that carries data transmission can introduce clicks that garble the message. This is important to companies participating in dial TWX service.

The extraneous clicks are caused by a discharge from the switch into a capacitor in the Buttinsky. Automatic Electric has a replacement switch plug for these phones that eliminates the garbling. In operation, a button on the plug is pushed as the Buttinsky is inserted into the switch, placing a high resistance in series with the capacitor. This retards the flow of current, so that there is no abrupt change to cause a click. Releasing the button then shuts out the resistor and restores normal operation of the phone. Request NP1911.

•

LITE IDENTIFICATION BOARD—Ryco Engineering Inc., has announced the availability of a Lite Board used to identify dead cable pairs when performing section cut-over work or re-establishing cable quads when piecing out load coil stubs with unit type cable. Ryco also reports this Board has been a real money-saver for tele-

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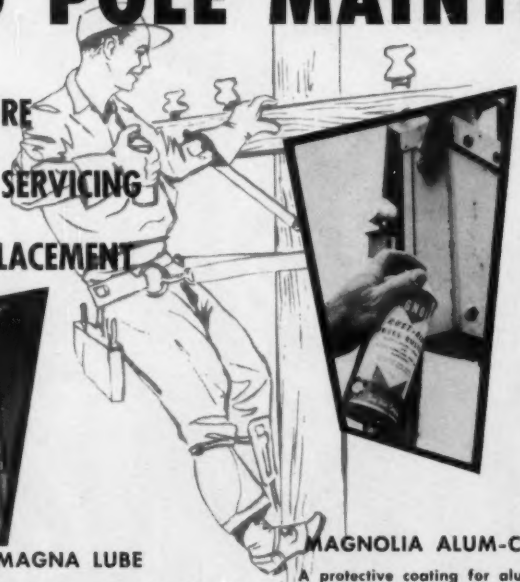

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Extend the life expectancy of wire rope and cable while in use with this all-purpose lubricant. It serves as a water, ice and rust repellent and also preserves and protects rubber insulators and seals.

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Eliminate lost time and possible replacement of rusted nuts, bolts, and studs. Push-button spray affords fast penetration and easy removal of steel or galvanized hardware. Rust-Rid can be used in all weather conditions and offers twelve-month retardment protection.

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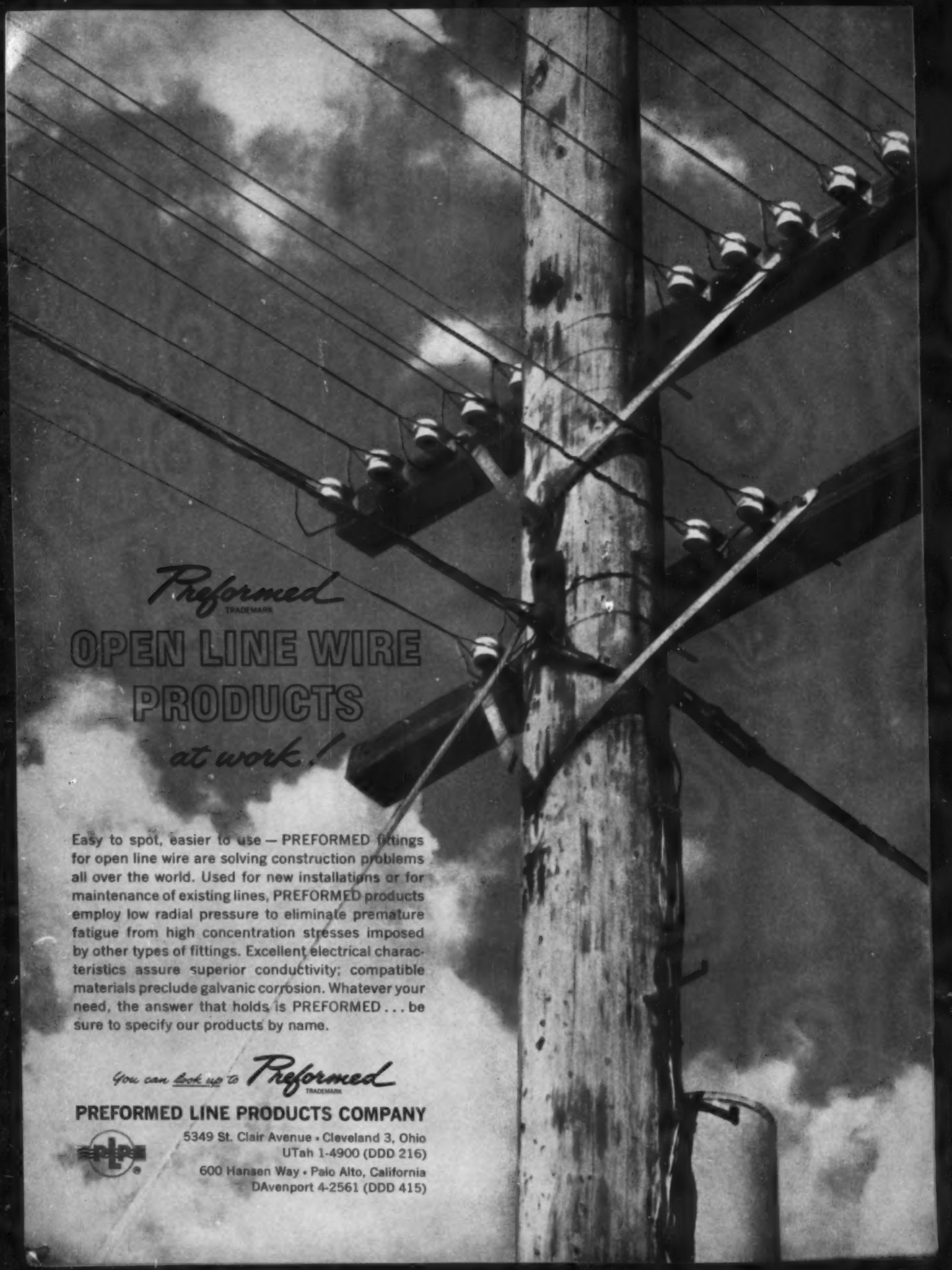

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to guard against abrasion and tie damage on new and existing construction involving both insulated and bare line wire. Accepted for R.E.A. construction . . . offering the greatest protection for insulated and long-span plant. Available in extra length for use at transposition points.

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to repair abraded or severed line wire at tie points or for mid-span splicing during new construction. PREFORMED splices develop full strength and conductivity . . . eliminate cutting the line wire and losing the circuit. Proved the most dependable under high frequency vibration. Available in compatible materials.

*Made in accordance with or for use under U.S. Patent No. 2,691,865; *other patent pending.*

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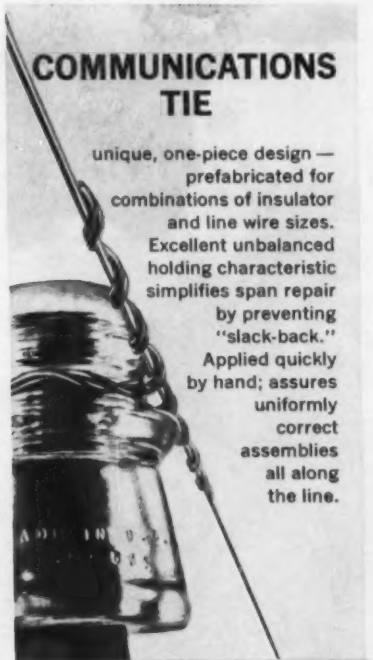
COMMUNICATIONS TIE

unique, one-piece design — prefabricated for combinations of insulator and line wire sizes. Excellent unbalanced holding characteristic simplifies span repair by preventing "slack-back." Applied quickly by hand; assures uniformly correct assemblies all along the line.



Made in accordance with or for use under U.S. Patent No. 2,691,865; 2,761,273; 2,947,504.

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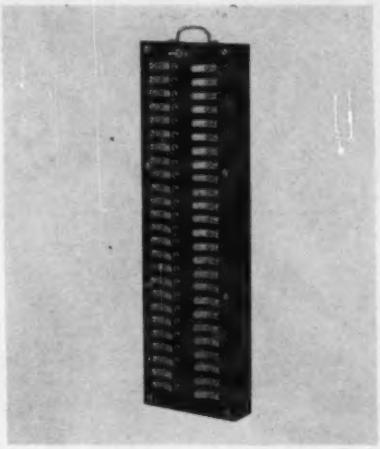
phone people responsible for these particular work assignments.

Ryco engineers state the Lite Board is 1¼" x 5" x 17½" in size, weighs 6½ pounds and is a three piece construction of black phenolic material. Also, the board contains 50 3.7V lamps adjacent to lever operated spring loaded needle point plungers capable of piercing pulp insulated cable pairs. Tapered apertures are located opposite each plunger for entering the cable pairs under each needle point plunger.

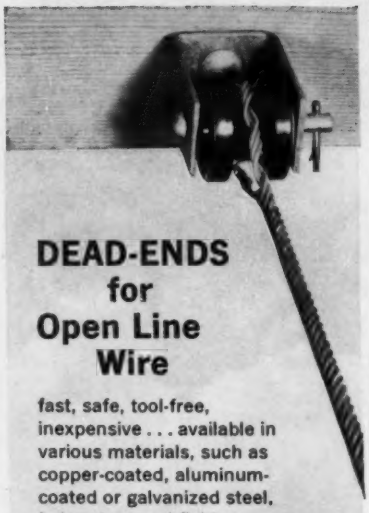


The needle point plungers are wired in series with the lamps commonly connected to a grounding post located at the top of the board. In turn, this grounding post is connected to the sheath of the new cable. One side of a battery is also connected to the sheath at the opposite end of the cable. The other side of the battery is connected to any one of the conductors. A circuit is now completed and the lamp corresponding to this conductor is illuminated.

According to Ryco, considerable time is saved by using the Lite Board compared to the method of dummy tagging. Also, the ease in terminating the pairs in the board eliminates the need of wrapping it into the splice. Request NP1912.

•

TONE GENERATORS—Transistorized tone generators, Type TG-1, for producing standard central-office tones, have been introduced by Automatic Electric, Northlake, Ill. The company is offering three units for; dial and busy tone (600 cycles modulated by 120 cycles), reverting tone (400 cycles modulated by 40 cycles), and class-of-service tone (500 cycles). If desired, separate units may be used for dial tone and for busy tones; they are only 5⅛" wide, and four units may be mounted on a single panel, across a 23-inch rack. The mounting



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fast, safe, tool-free, inexpensive . . . available in various materials, such as copper-coated, aluminum-coated or galvanized steel. Laboratory and field evaluation tests prove that PREFORMED dead-ends outlast all other types. Low distribution of stresses assures long service life for trouble-free operation — sized to fit all standard wire.

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least expensive way of eliminating mid-span hits on new or existing line wire — prevents expensive damage to switching mechanism caused by resulting shorts. The PSU also provides protection where tree trimming clearance is unobtainable. Lightweight, non-corrosive . . . made of rugged, high-impact polyvinyl chloride. Applied in a few seconds by hand for long-lasting, trouble-free service.

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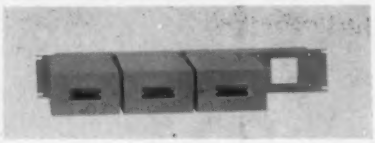
panel occupies only 3½ inches of vertical space.

Each unit supplies up to five watts of tone power, and can furnish tone



for up to 30,000 lines, the company says. Exchange battery—either 24 or 48 vdc—powers the unit; thus, it is not affected by commercial-power failure. All of the tone generators have output voltages adjustable in 6 db steps, and have no moving parts. Request NP1913.

•

SKIN CLEANER—Just massage PLY Waterless Skin Cleaner over the dirtiest hands, then wipe it away and all traces of grease, paint or dirt will vanish from the skin and nails. That is the claim made by Milburn Co. for its waterless skin cleaner.

The product is said to contain no kerosene, turpentine, gasoline, solvents, caustics or abrasives,—and unlike most skin cleaners, it is water-solvent and can be rinsed away easily.

The company says PLY Skin Cleaner is a bland, pleasantly scented, medically approved, effective cleaner which is non-irritating, non-flammable and actually healing to chapped, sore hands. Request NP1914.

•

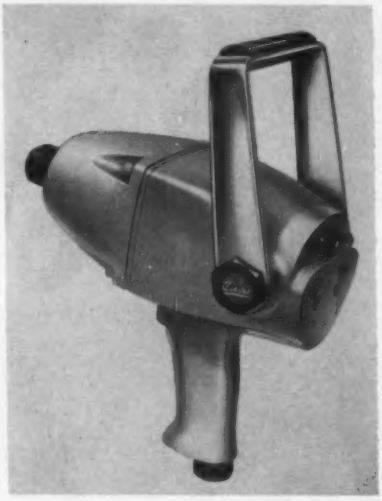
AIR IMPACT WRENCH—An industrial air impact wrench, weighing only 17½ pounds with a rated bolt capacity of 1¼ inch and featuring the same exclusive oscillating mechanism that has proved popular in smaller models, has been announced by Thor Power Tool Co.

The Thor W125 wrench is approximately 22 per cent lighter in weight than competitive models currently available to the trade.

Thor engineers compare the wrench's oscillating action to the windshield wiper on an automobile. Constant engagement of impact jaws and anvil guarantees long life of impact hammer and anvil. The hammer unit can not skip a blow or strike a partially engaged blow, thus eliminating one of the major causes of impact wrench failure in conventional rotary action wrenches, the company says.

Efficiency of design, combining motor and mechanism in a single unit, permits extreme close coupling for shorter length (the W125 is only 8½ inches long). Single-blade construction permits operation on minimum air pressures. Sensitive response to trigger control for operating at fast or slow speeds under various torque conditions is another feature of the Thor wrench.

The W125 comes with a side handle and a three position swing handle which locks upright, horizontally, or, at approximately 45 degrees. It is also



available with a grip handle (W125G).

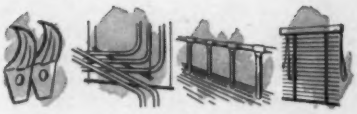
Other features of the Thor wrench include: a replacable Neoprene throttle valve that will not corrode and is rust-proof; automatic oiler to lubricate motor while tool is in operation; heat-treated cast alloyed aluminum housing for lightness in addition to strength and durability. An optional housing is available for tools subject to more abusive methods of operation. Request NP1915.

•

SERVICE-OBSERVER — Equipment that permits a central office to observe the quality of subscriber service has

been announced by Automatic Electric, Northlake, Ill. The equipment consists of three portable units; control panel, pulse detector, and recorder—along with power and interconnecting lines.

The service-observing equipment



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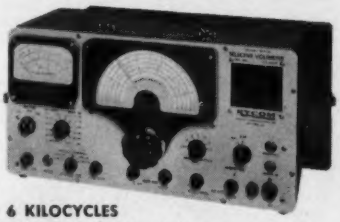

50 CYCLES TO 6 KILOCYCLES
Measuring: —68 dbm to +32 dbm full scale
Selectivity: 30 or 50 cycles
Input: 135, 600 ohm bridging, balanced or unbalanced

MODEL 2174A

300 CYCLES TO 400 KILOCYCLES
Measuring: —68 dbm to +32 dbm full scale
Selectivity: *50 cycles, 100 cycles, 2800 cycles measuring and monitoring
Input: 135, 600 ohm bridging, balanced or unbalanced

MODEL 2173A

3 KILOCYCLES TO 2.0 MEGACYCLES
Measuring: —68 dbm to +32 dbm full scale
Selectivity: Measuring 250 cycles, 2800 cycles
Input: Unbalanced bridging

*Models 2174A and 2173A are supplied with a reinsertion carrier for single side band demodulation. All units have internal calibration signal. *Model 2174A: 50 cycle filter supplied at slight increase in price.*

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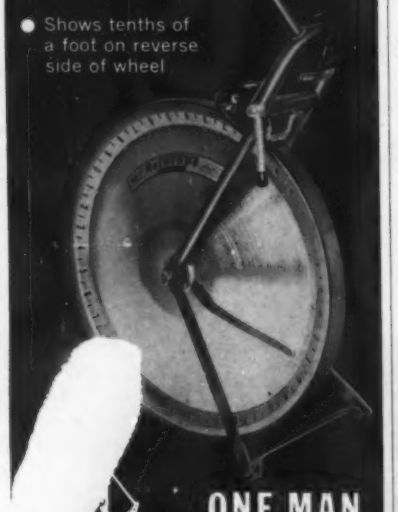

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monitors 30 subscriber lines connected to 15 two-way keys on the control panel. A subscriber lifting his handset lights a lamp on the panel. Operating the associated key allows the observer to monitor the call via high-impedance monitor and headset circuits. Monitoring may be selective or at random. If two or more keys are inadvertently operated at the same time, the lowest number takes precedence—cross connections cannot result.

The recorder prints on a paper dial pulses received from the pulse detector. The pulse detector may be switched for operation with either SATT (Strowger Automatic Toll Ticketing) or non-SATT exchanges.

AE's portable service observing equipment can be used in any automatic or common-battery central office having 48 VDC. Request NP1916.

Union Carbide Promotes M. T. Bolmer Jr.

Maurice T. Bolmer Jr. has been promoted to regional manager in the North-Central Sales Region of Union Carbide Plastics Co. He will direct the sale of Bakelite brand polyethylene, polypropylene, styrene, vinyl, phenolic, and epoxy resins and compounds, as well as other plastic materials, in the states of Michigan, Ohio, southern Indiana, West Virginia, Kentucky, western New York, and Pennsylvania.

Mr. Bolmer was graduated from Lafayette College in 1943 with a B.S. degree in engineering physics. He also attended the Columbia University Graduate School of Business. He joined Union Carbide in 1946, having served as a captain in the U. S. Army Signal Corps.

John Eager Named Recordak Vice President

John P. Eager, sales manager, has been elected vice president, director of product administration of Recordak Corp., a subsidiary of Eastman Kodak Co. He will also have collateral responsibilities in sales management.

A native of Kansas City, Mo., Mr. Eager began his business career with the Commerce Trust Co. there and acquired extensive experience in bank operations which led to his employment by Recordak Corp. in 1939. He was first assigned as a sales and systems representative covering the principal market areas of western Missouri, Kansas and Nebraska. With the opening of the new Recordak branch in Kansas City in 1946, Eager was appointed brach manager.

In 1953 he was promoted to manager of the Recordak branch at Chicago. His advancement to midwest division

Business communications specialists met at Automatic Electric's Northlake, Illinois plant. The group has been set up to assist Independents in specifying equipment needs for their business subscribers, and to help them promote broader communication services to this class of user. Pictured are (l. to r., front row) R. P. Weed, staff engineer, Northlake; D. E. Johnson, staff engineer, Northlake; J. A. Webber, director of business communications, Northlake; W. G. McDougall, assistant director, Northlake; and R. C. Lyday, southeastern district. Back row: L. J. Jordak, western district; W. P. Horn, south central district; J. S. Miga, staff assistant, Northlake; G. T. Kane, northeastern district; A. G. Krueger, staff assistant, north central district; H. C. Smith, vice president and field sales manager, Communications Products Division; and W. S. Gage, vice president, CPD.

manager followed in 1956 and brought under his supervision the operations and sales activities of eight Recordak offices in the midwestern states.

In 1961 Mr. Eager was transferred to the Recordak executive offices in New York as sales manager of the company.

Hoy Named Vice President Of U.S. Instrument Corp.

The United States Instrument Corp. has announced the promotion of Edward F. Hoy to vice president of manufacturing. Hoy has been manager of manufacturing since March, 1961.

E. F. HOY

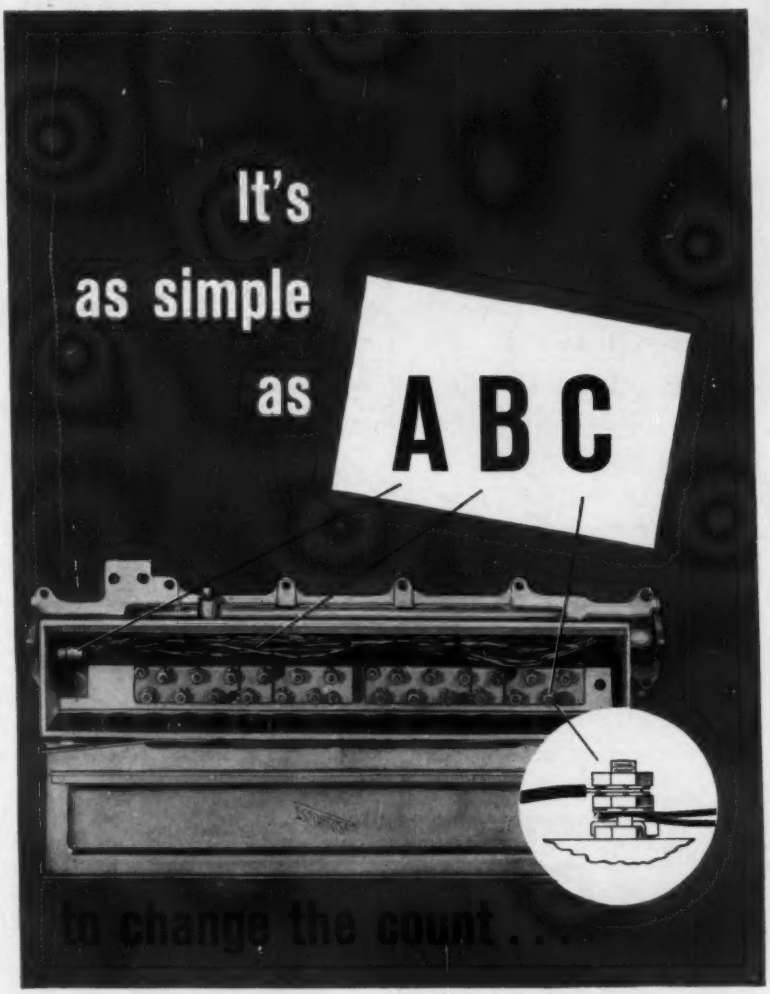
Prior to joining USI, Hoy was manager of production planning for General Dynamics/Telecommunication in Rochester, N.Y. Upon receiving a bachelor's degree in business administration from Boston College in 1950, he was employed by General Electric at Somersworth, N.H. Hoy was manager of inventory control and systems at the time of his move to General Dynamics in 1960.

Julius Leonhard Appointed R&D Consultant at Page

Julius Leonhard has been appointed consultant to the director of research and development at Page Communications Engineers, Inc., a subsidiary of Northrop Corp.

Mr. Leonhard has more than 20 years' experience in radio engineering. He was a pioneer worker in the development of troposcatter communications and has become a specialist in natural and artificial interference and antijamming techniques.

Before joining Page, he was a staff member of the Communications Department at ITEK Laboratories in Lexington, Mass. Earlier he was a staff member with Hermes Electronics



Reliable's VARIABLE COUNT SPLICE CASE TERMINAL
is a pressure terminal with Ready Access features for use on lead, aluminum and plastic cable.

A The cable bundle consists of 26 fully color coded polyvinyl insulated pairs. The cleared ends are potted and sealed in a plastic cup.

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C The terminal design, together with insulation piercing washers, permits changing the terminal count without opening the splice case.

Only the cable pairs used for services are terminated on the binding posts; the rest remain fully insulated. This eliminates unnecessary multiple pair appearances and helps maintain high insulation resistance.

Variable Count Terminals are furnished with either 6 or 12 pair terminal blocks. Two terminals can be combined back-to-back to accommodate 50 pair connections with a maximum of 24 pair terminations.

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A Symbol of Integrity Since 1909

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Co. (formerly Hycon Eastern, Inc.), where he worked on system design and equipment specifications for troposcatter links of the Hycon-Page Libya telephone network.

From May, 1957, to June, 1961, he was technical director and then project manager of the Hycon Eastern effort on the SHAPE project ACE HIGH, a 13-nation troposcatter communications network.

Mr. Leonhard is a graduate of the Massachusetts Institute of Technology.

William Featherstone Promoted at Hubbard & Co.

William Featherstone has been promoted to division sales manager, west coast division, Hubbard and Co.

He will continue to work out of

WILLIAM FEATHERSTONE

the company's California offices and will be responsible for sales in an 11 western-states area.

Before his new appointment, he was product sales manager of the west coast division, responsible for sales marketing, training and engineering. He earned his electrical engineering degree from the University of California.

Whitney Blake Company Names New Officers

The appointment of a new vice president and a new treasurer at Whitney Blake Co. has been announced by John Brown Cook, president. The new vice president is Mrs. Rachel Duffy; the new treasurer is Robert A. Shields.

Mrs. Duffy, assistant secretary as well as vice president, formerly was in banking and financial work. She was appointed assistant secretary and in 1950, was made assistant treasurer. In this position she was in charge of accounting and payroll. In 1956, Mrs. Duffy was appointed treasurer as well as assistant secretary.

Mr. Shields joined Whitney Blake

MRS. RACHEL DUFFY

in 1948, as a special accountant. In 1956, he became controller and in 1957, assistant treasurer and controller. Mr. Shields attended Columbia University

R. A. SHIELDS

and the School of Executive Development in New Haven. He was previously with Scovill Wellington Co. and the New Haven Railroad. He is treasurer of the Executive Associates Forum of New Haven, and is the Whitney Blake representative to the NEMA Accounting Committee.

In addition to his duties as treasurer of Whitney Blake, Mr. Shields is one of the directors of the Techtromatic Corp., North Walpole, N. H.; Standard Connector Corp., North Haven, Conn.; and Circuit Wise, Inc., North Haven, Conn.

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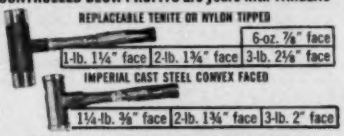

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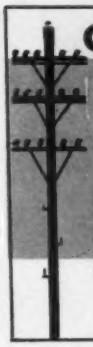

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Index to ADVERTISERS

	Page
Acme Visible Records, Inc.	—
Acoustics Development Co.	—
Airtronics International Corp.	62-63
Alphaduct Wire & Cable Co., The	47
Altec Lansing Corp.	—
Aluminum Company of America	—
Aluminum Ladder Co.	64
American Appraisal Co.	75
American Creosoting Corp.	—
American Steel & Wire Co.	—
American Telephone & Telegraph Co.	10-11
Anaconda Wire & Cable Co.	—
Arps Corporation	—
Arrow Fastener Company	—
Automatic Electric Sales Corp.	6-7, 14-15, 40-41
Barber Advertising Specialties, Walt.	—
Barnard & Associates, Inc., J. C.	—
Bell Telephone Laboratories, Inc.	—
Benner-Nawman, Inc.	—
Berry & Co., L. M.	18
Bethlehem Steel Co.	—
Bishop Mfg. Co.	—
Bohnsack Equipment Co.	56
Brady Co., W. H.	—
Brand, Wm.—Rex Div.	—
Buckeye Telephone & Supply Co.	76
Budelman Electronics Corp.	55
Burgess Manning Co.	—
B. Y. Dial Service	—
C&D Batteries, Inc.	—
Cabaniss-Pogue Co.	75
Cable Construction Co.	75
Cable Spinning Equipment Co.	—
Calculagraph Company	—
C&S Products Inc.	—
Champ Corporation	31
Chance Co., A. B.	—
Chevrolet Div. of General Motors	—
Chicopee Mills Inc.	—
Cleveland Inst. of Electronics	—
Coates Field Service, Inc.	—
Collins Radio Co.	—
Colorado Fuel & Iron Co., The	—
Commercial Cord Company, Inc.	—
Communication Equipment & Engineering Co.	57
Cook Electric Company	—
Copperweld Steel Co.	43
Corcoran Construction Co.	75
Corrosion Reaction Consultants	29
Crane Inc. Carl C.	75
Cushman Motors	79
Davis Construction Co.	—
Davis Mfg. Co., Inc.	—
Deere & Co.	—
Delco Radio, Div. of General Motors	35
Dial Haven, Inc.	75
Dierks Forest, Inc.	77
Dillon & Co., Inc., W. C.	—
Donnelley & Sons Co., R. R.	—
Duo-Safety Ladder Corp.	—
E. & C. Contracting Corp.	75
Electronic Controls Inc.	33
Electronic Secretary Industries	—
Everstick Anchor Co.	—
Exide Industrial Div.	—
Floor-Con	—
Ford Motor Co., The	—
Gagne Enterprises, Inc.	—
Gans Surplus Tire Co.	—
General Cable Corporation	—
General Communications Products Inc.	—
General Electric Company	27
General Machine Products Co., Inc.	—
General Telephone Directory Co.	Back Cover
General Welding, Inc.	—
Gladwin Plastics, Inc.	—
Gould-National Batteries, Inc.	—
Graybar Electric Co.	—
Greenlee Tool Co.	—
Hallamore Electronics Co.	—
Hammond Drierite Co., W. A.	—
Harris-McBurney Company	—
Henkels & McCoy	75
Hirsch Organization, Inc., Gustav	—
Hitachi, Ltd.	—
Holan Corp.	—
Homs Company, Douglas	—
Indiana Steel & Wire Co.	—
International Teletronics Inc.	—
Irwin-Auger Bit Co.	—
ITT-Kellogg	8-9, 12-13
Johns-Manville Corp.	—
Justrite Mfg. Co.	66
Kearney Co., Jas. R.	—
Kelley Products	—
Kemode Manufacturing Co., Inc.	—
Keystone Steel & Wire Co.	—
Killoren Company	75
Klein & Sons, Mathias	49
Knapp Mfg. Co.	75
Koppers Co., Inc. Wood Preserving Div.	77
Kwal Paints, Inc.	54
Lenkurt Electric Co.	—
Lindsay Telephone Supply Co.	—
Lorain Products Corp., The	5
Lynch Communication Systems, Inc.	53
Magnolia Chemical Co., Inc.	67
Mast Directory Co., Leland	75
McCabe-Powers Body Company	—
McGrath Engineering Inc.	75
Minnesota Mining & Mfg. Co.	—
Monarch Molding, Inc.	—
Monsanto Chemical Co.	—
Morrison-Pelsue Co.	—
Natco Corporation	—
National-Standard Co.	—
National Telephone Supply Co.	—
Neubauer Manufacturing Co.	—
Neuses, Inc., P. K.	77
North American Philips Co.	51
North Electric Company	60-61
Northeast Electronics Corp.	45
Olin Mathieson Chemical Co.	37
Onan Division, Studebaker-Packard Corp.	—
Orangeburg Mfg. Co.	—
Orbit Industries, Inc.	—
Page & Hill, Inc.	—
Panhandle Electric Sales, Inc.	—
Parsons Company	—
Petersen Engineering, Inc.	—
Phelps Dodge Copper Products Corp.	—
Precision Multiple Controls, Inc.	—
Preformed Line Products Co.	68-69
Pruzan Company, Jack	77
Puregas Equipment Corp.	39
Radiation Inc.	—
Radio Corporation of America	16
Radio Frequency Laboratories	—
Railway Communications, Inc.	71
Rawlplug Co. Inc., The	71
Recordak Corp.	—
Reliable Electric Company	73
Republic Creosoting Company	—
Rezolin Inc.	70
Rockwell Products Corp.	—
Rohn Manufacturing Co.	—
Rolatape, Inc.	72
S & G Manufacturing Corp.	—
Schauer Mfg. Co.	—
Seymour Smith & Son	—
Sherron Metallic Corp.	—
Sierra Electronics Corp.	75
Sloan, Cook & Lowe	75
Stahl Metal Products	—
Stampings, Inc.	—
Stewart Brothers	—
Stromberg-Carlson® Products, General Dynamics/ Telecommunications	2-3
Studebaker-Packard Corp.	—
Superior Cable Corporation	—
Suttle Directory Corporation	74
Tahlen Hammer Co.	75
T.E.I. Corp.	75
Telectric Co.	77
Tele-Muff Co.	—
Telephone Cables, Ltd.	17
Telephone Carrier Service	—
Telephone Equipment Supply Co.	74
Tel-Plastics, A Div. of Woodman Co., Inc.	—
Tele-Service Co.	75
Teletype Corporation	—
Tele-Wire Supply Co., Inc.	—
Telkor, Inc.	75
Terado Company	—
Thornhill Publishing Co.	—
Transandean Associates, Inc.	—
Trans-Technion, Inc.	—
Trepac Corp. of America	—
Tudor & Yager, Inc.	75
Union Carbide Plastics Company	—
U. S. Cable Constructors, Inc.	75
United States Independent Telephone Association	—
United States Instrument Corp.	65
United States Motors Corp.	—
United States Steel Corp. American Steel & Wire Co.	—
Universal Controls Corp.	—
Utilities Contracting Corp.	75
Utility Equipment Co.	—
Utility Products Co.	—
Utility Service Co., Inc.	—
Utility Tool & Body Co.	77
Vermeer Manufacturing Co.	—
Warren Mfg. Co., The	—
Webster Electric Co.	—
Weikel Line Company	75
Welding Service	—
Western Electric Company	—
Whitney Blake Co.	—
Williams Inspection Co., Inc., A. W.	—
Willys Motors, Inc.	—
Winders & Geist, Inc.	—
Wiremold Co., The	—
Wyoming Valley Equipment Div.	—
York Body, Div. of Pitman Mfg. Co.	59

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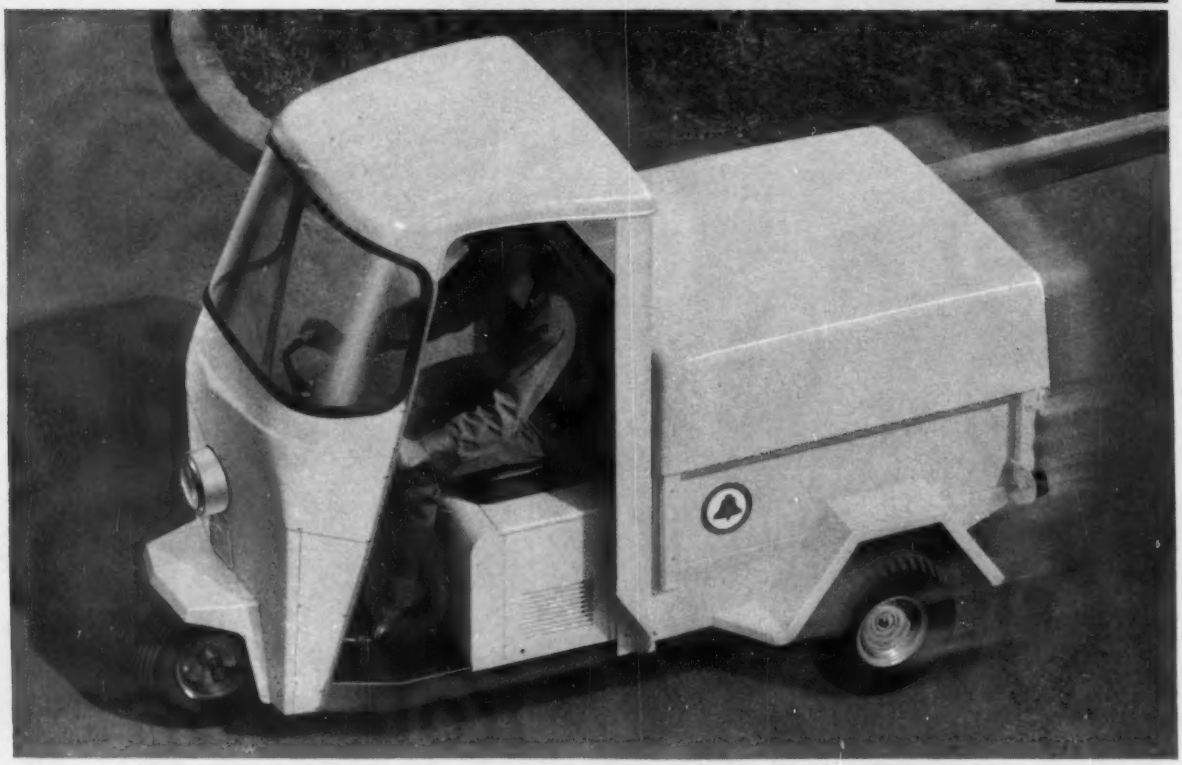

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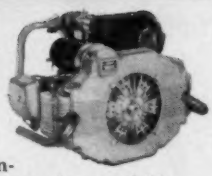

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